LOWER TULE RIVER IRRIGATION DISTRICT

POPLAR BASIN PROJECT

DRAFT INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

TULARE COUNTY
JUNE 2025

PREPARED FOR:
Lower Tule River Irrigation District
357 E. Olive Avenue, Tipton, California 93272

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ACRONYMS & ABBREVIATIONS

AB ---------- Assembly Bill
APE ---------- Area of Potential Effect
BMP ---------- Best Management Practices
BPS ---------- Best Performance Standards
CalEEMod ---------- California Emissions Estimator Modeling (software)
CARB ---------- California Air Resources Board
CAA ---------- Clean Air Act
CCAA ---------- California Clean Air Act
CDFW ---------- California Fish and Wildlife
CEQA ---------- California Environmental Quality Act
CFC ---------- Chlorofluorocarbons
CH_4 ---------- Methane
CHRIS ---------- California Historical Resources Information System
CNDDB ---------- California Natural Diversity Database
CNPS ---------- California Native Plant Society
CO ---------- Carbone monoxide
CO_2 ---------- Carbon dioxide
County ---------- Tulare County
CRHR ---------- California Register of Historical Resources
CZMA ---------- Coastal Zone Management Act
DOC ---------- Department of Conservation
DTSC ---------- Department of Toxic Substances Control
EIR ---------- Environmental Impact Report
FEMA ---------- Federal Emergency Management Agency
FMMP ---------- Farmland Mapping and Monitoring Program
FPPA ---------- Farmland Protection Policy Act
GHG ---------- Greenhouse Gas
GSA ---------- Groundwater Sustainability Agency
GSP ---------- Groundwater Sustainability Plan
GWP ---------- Global Warming Potential
HFC ---------- Hydrofluorocarbons
IPaC ---------- (United States Fish and Wildlife Service's) Information for Planning and Consultation system
IS ---------- Initial Study
IS/MND ---------- Initial Study/Mitigated Negative Declaration
LTGSA ---------- Lower Tule Groundwater Sustainability Agency
LTRID ---------- Lower Tule River Irrigation District
MMRP ---------- Mitigation Monitoring and Reporting Program
MND ---------- Mitigated Negative Declaration
MRZ ---------- Mineral Resource Zone
$MTCO_2e$ ---------- Metric tons of carbon dioxide equivalent
NAHC ---------- Native American Heritage Commission
ND ---------- Negative Declaration
NEPA ---------- National Environmental Policy Act
N_2O ---------- Nitrous Oxide
NO_2 ---------- Nitrogen dioxide
NOx ---------- Oxides of nitrogen
NRCS ---------- Natural Resources Conservation Service
NRHP ---------- National Register of Historic Places
O_3 ---------- Ozone

Pb ---------- Lead
PFC ---------- Perfluorocarbons
PM_{10} ---------- particulate matter 10 microns in size
$PM_{2.5}$ ---------- particulate matter 2.5 microns in size
ppb ---------- parts per billion
ppm ---------- parts per million
Project ---------- Poplar Basin Project
ROG ---------- Reactive Organic Gases
SCE ---------- Southern California Edison
SDWA ---------- Safe Drinking Water Act
SGMA ---------- Sustainable Groundwater Management Act
SIP ---------- State Implementation Plan
SJVAB ---------- San Joaquin Valley Air Basin
SJVAPCD ---------- San Joaquin Valley Air Pollution Control District
SLF ---------- Sacred Lands File
SO_2 ---------- Sulfur Dioxide
SSA ---------- Sole Source Aquifer
SSJVIC ---------- Southern San Joaquin Valley Information Center
SR ---------- State Route
SRA ---------- State Responsibility Area
SWPPP ---------- Storm Water Pollution Prevention Plan
SWRCB ---------- State Water Resources Control Board
TCEHD ---------- Tulare County Environmental Health Division
TPY ---------- tons per year
USACE ---------- United States Army Corps of Engineers
USEPA ---------- United States Environmental Protection Agency
USFWS ---------- United States Fish and Wildlife Service
USGS ---------- United States Geological Survey
$\mu g/m^3$ ---------- micrograms per cubic meter

CHAPTER 1 INTRODUCTION

Provost & Pritchard Consulting Group (Provost & Pritchard) has prepared this Initial Study/Mitigated Negative Declaration (IS/MND) on behalf of the Lower Tule River Irrigation District (LTRID) to address the potential environmental effects of the Poplar Basin Project (Project). This document has been prepared in accordance with the California Environmental Quality Act (CEQA), Public Resources Code Section 21000 et seq. The LTRID is the CEQA lead agency for the proposed Project.

The site and the proposed Project are described in detail in Chapter 2 Project Description.

1.1 REGULATORY INFORMATION

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

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

1.2 DOCUMENT FORMAT

This IS/MND contains six chapters Chapter 1 Introduction, provides an overview of the proposed Project and the CEQA process Chapter 2 Project Description, provides a detailed description of proposed Project components and objectives. Chapter 3 Determination, the Lead Agency's determination based upon this initial evaluation. Chapter 4 Environmental Impact Analysis presents the CEQA checklist and environmental analysis for all impact areas, mandatory findings of significance, and feasible mitigation measures. If the proposed Project does not have the potential to significantly impact a given issue area, the relevant section provides a brief discussion of the reasons why no impacts are expected. If the proposed Project could have a potentially significant impact on a resource, the issue area discussion provides a description of potential impacts, and appropriate mitigation measures and/or permit requirements that would reduce those impacts to a less than significant level. Chapter 5 Mitigation, Monitoring, and Reporting Program (MMRP), provides the proposed mitigation measures, implementation timelines, and the entity/agency responsible for ensuring implementation. Chapter 6 References details the documents and reports this document relies upon to provide its analysis.

The Air Quality and Greenhouse Gas Emissions Model, Biological Evaluation, and Phase I Cultural Resources Assessment, are provided as technical Appendix A, Appendix B, and Appendix C, respectively, at the end of this document.

CHAPTER 2 PROJECT DESCRIPTION

2.1 PROJECT BACKGROUND

2.1.1 PROJECT TITLE

Poplar Basin Project

2.1.2 LEAD AGENCY NAME AND ADDRESS

Lower Tule River Irrigation District
357 E Olive Avenue
Tipton, CA 93272

2.1.3 CONTACT PERSON AND PHONE NUMBER

John-Michael Domondon
District Engineer
(559) 686-4716

2.1.4 CEQA CONSULTANT

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

2.1.5 PROJECT LOCATION

The proposed Project is located southwest of the city of Porterville in Tulare County, California, approximately 70 miles southeast of Fresno and 60 miles north of Bakersfield near the unincorporated community of Poplar, (see Figure 2-1 and Figure 2-2). The Project site is located approximately on Assessor's Parcel Numbers 302-020-003, 302-020-040, 302-020-004, and 302-020-044. The centroid of the Project site is 36.0352842 N, 119.1367455 W.

2.1.6 GENERAL PLAN DESIGNATION AND ZONING

Table 2-1: General Plan Designation and Zoning

Project Area	General Plan Designation	Zoning District
ONSITE	Valley Agriculture – Rural Valley Lands	Agriculture Rural: AE-20
ADJACENT LANDS	Valley Agriculture – Rural Valley Lands	Agriculture Rural: AE-20

2.1.7 DESCRIPTION OF THE PROJECT

2.1.7.1 PROJECT BACKGROUND AND PURPOSE

The Lower Tule River Irrigation District (LTRID) has successfully secured Proposition 68 grant funding to develop an approximately 41.7-acre recharge facility known as the Poplar Basin (Project) located approximately one mile south of the community of Poplar. Implementation of the proposed Project will help support meeting the objectives of the Sustainable Groundwater Management Act (SGMA) in the Tule Subbasin. The deadline associated with the grant is construction completed before December 31, 2025.

2.1.7.2 PROJECT DESCRIPTION

The new approximately 41.7-acre recharge basin facility is comprised of two (2) 20-acre basins and would include two new turnout connections from the LTRID's Casa Blanca Ditch on the southern end of the property. Each turnout would have approximately 100 feet of pipeline. The basin would generally be rectangular in shape and consist of two interconnected cells surrounded by lands in agricultural production. There are two existing turnouts that are in the canal but would not be used as part of this project as well as a check structure along the Casa Blanca Ditch running along the southern border of the Area of Potential Effect (APE). The check structure is not part of the project and would remain as is. Overhead electricity lines run along the northern border of the APE with an existing power pole near the northeast corner of the APE. The APE is identified as approximately 41.7 acres for the purposes of biological and cultural surveys.

2.1.7.3 CONSTRUCTION SCHEDULE

Construction of the proposed Project is expected to be completed in four to six months with construction access off of Scranton Avenue/Avenue 136. The Project parcel has been cleared of orchards and would be cleared of any other vegetation and debris. The proposed Project includes mobilization, site preparation, and berm construction surrounding the basin; earthwork and structures placement; Project turnouts, piping, and inter-basin and basin outfall structures. The new berm construction would be less than six feet high, measured from the exterior toe to the top of the new levee. After construction completion, performance testing and demobilization would occur. Any soil that cannot be reused in construction or balanced onsite would be placed in a stockpile on the northern end of the property. This stockpile would be exported offsite over time to an LTRID-owned property or willing taker(s) of the soil.

2.1.7.4 EQUIPMENT

Construction equipment would likely include, but not be limited to, the following types:

- Excavators;
- Graders;
- Skid steers;
- Loaders;
- Hauling trucks;
- Bulldozers;
- Concrete pump truck;
- Large tractor and large discing unit;
- Water trucks supplying water for dust control and conditioning soil for compaction; and
- Large watercannon and hoses.

Post-construction activities would include system testing, commissioning, and site clean-up. Construction will require temporary staging and storage of materials and equipment. Staging areas would be located onsite within the identified APE.

2.1.7.5 OPERATION AND MAINTENANCE

Operation of the basin would be consistent with LTRID's other similar facilities in that groundwater conditions would be monitored to minimize negative impacts on the surrounding areas (such as nearby wells, crops, and septic systems).

2.1.8 SITE AND SURROUNDING LAND USES AND SETTINGS

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

Direction from Project Site	Existing Use	General Plan Designation	Zone District
NORTH	Agriculture	Valley Agriculture – Rural Valley Lands	Agriculture Rural: AE-20
EAST	Agriculture	Valley Agriculture – Rural Valley Lands	Agriculture Rural: AE-20
SOUTH	Agriculture	Valley Agriculture – Rural Valley Lands	Agriculture Rural: AE-20
WEST	Agriculture	Valley Agriculture – Rural Valley Lands	Agriculture Rural: AE-20

2.1.9 OTHER PUBLIC AGENCIES WHOSE APPROVAL MAY BE REQUIRED

Ministerial approvals and permits that may be required:

- State Water Resources Control Board (SWRCB) – for National Pollution Discharge Elimination System Construction General Permit (Storm Water Pollution Prevention Plan)
- San Joaquin Valley Air Pollution Control District – Rules and Regulations (Regulation VIII, Rule 9510, Rule 4641)

2.1.10 CONSULTATION WITH CALIFORNIA NATIVE AMERICAN TRIBES

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

The LTRID has not received any written correspondence from a Tribe pursuant to Public Resources Code Section 21080.3.1 requesting notification of proposed Project.

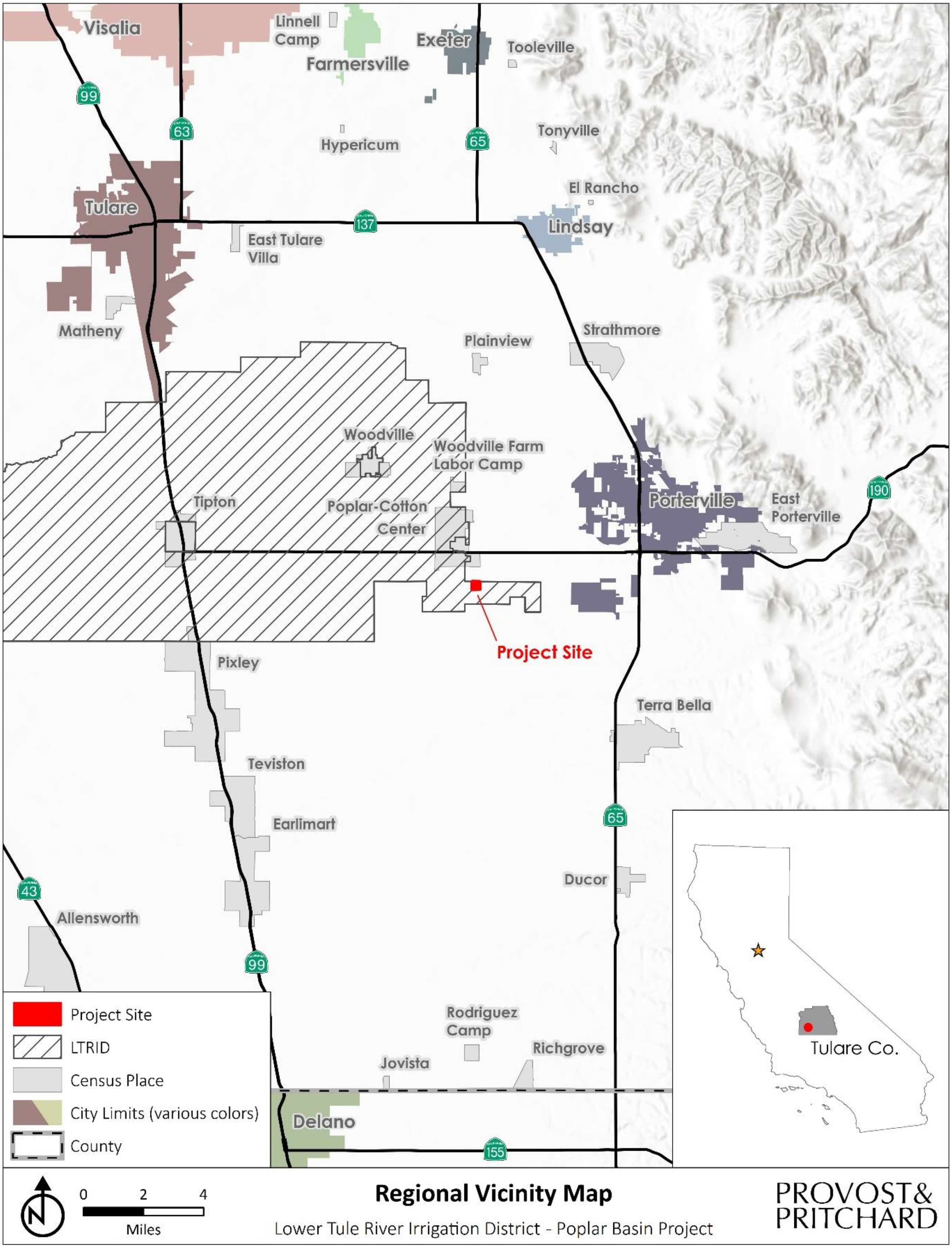

Figure 2-1: Regional Location Map

Figure 2-2: Aerial Site Map

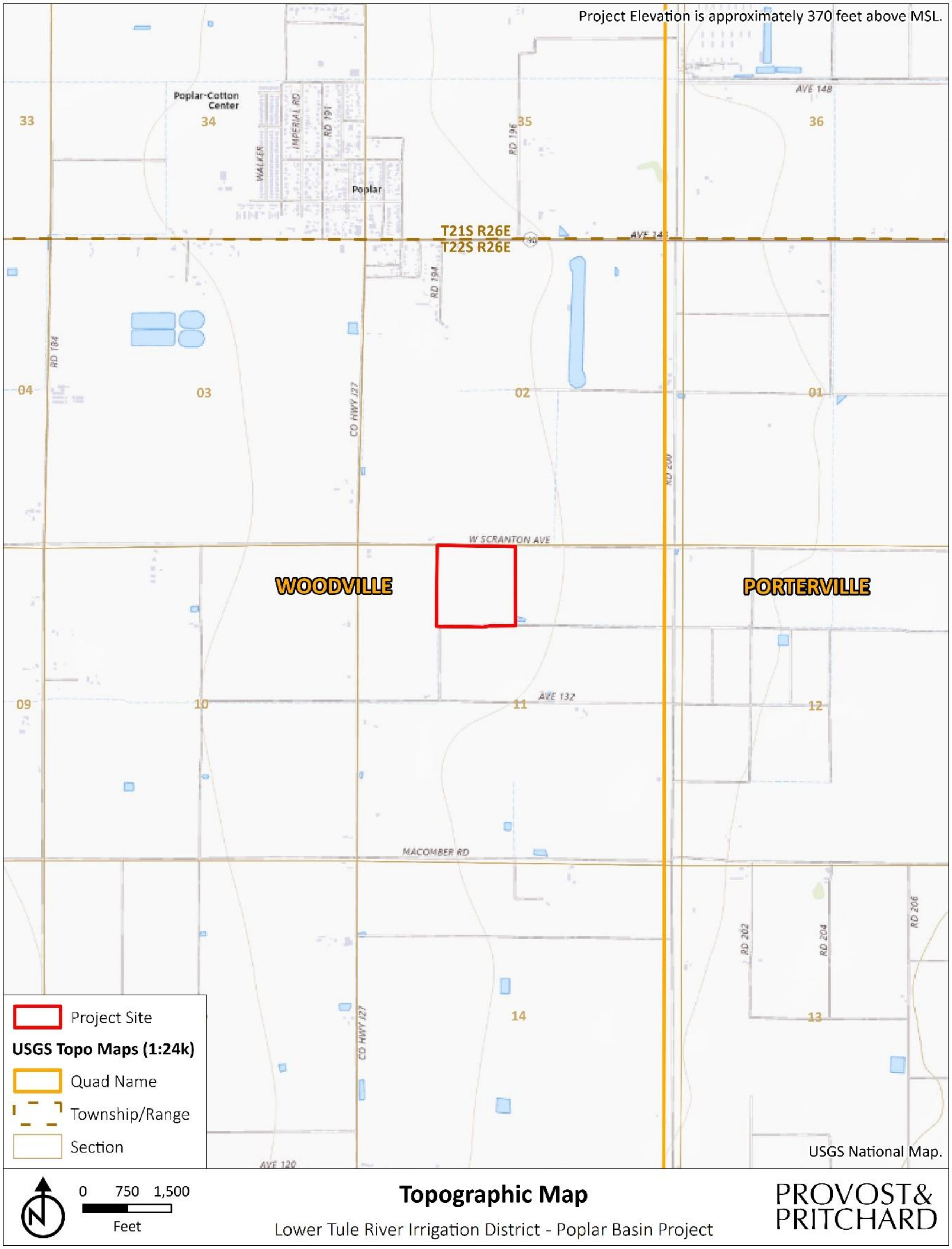

Figure 2-3: Topo Quad Map

Figure 2-4: General Plan Land Use Designation Map

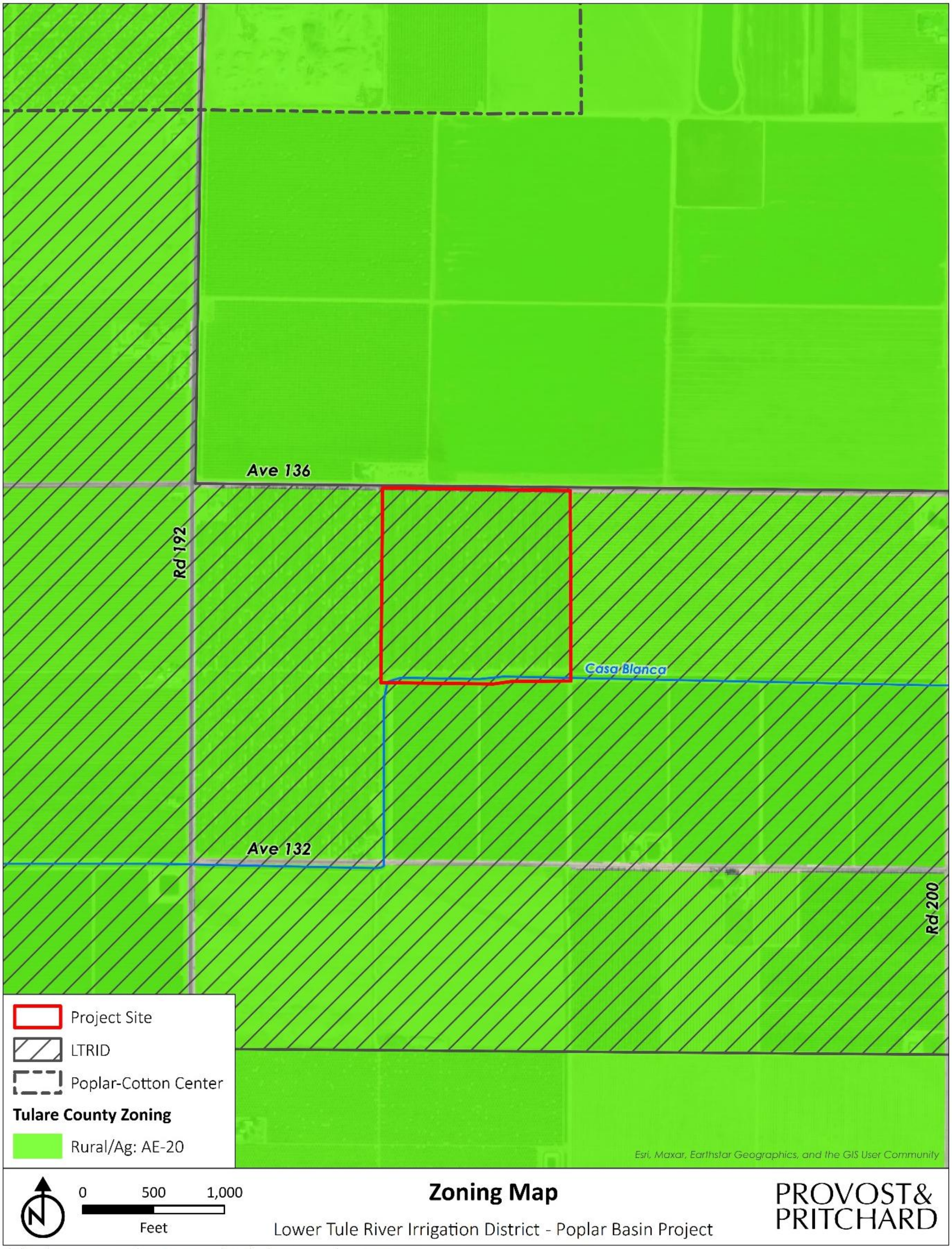

Figure 2-5: Zone District Map

CHAPTER 3 DETERMINATION

3.1 POTENTIAL ENVIRONMENTAL IMPACTS

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

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

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

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

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

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

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

3.2 DETERMINATION

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

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature | Date 5/30/2025

ERIC LIMAS, General Manager
Printed Name/Position

CHAPTER 4 ENVIRONMENTAL IMPACT ANALYSIS

4.1 AESTHETICS

Table 4-1: Aesthetics Impacts

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

4.1.1 BASELINE CONDITIONS

The Project site is situated south of the community of Poplar, in Tulare County (County), California. Lands in the proposed Project's vicinity consist of relatively flat, irrigated farmland and retired farmland, as well as sporadic residences. Scenic features in the area include the substantial expanse of agricultural uses in addition to distant views of the Sierra Nevada mountain range to the east.

According to the California Department of Transportation, the closest eligible and officially designated California State Scenic Highway is State Route (SR) 65, where it concludes (as a designated scenic highway) five miles to the east in the city of Porterville.[1] There are no known historic buildings in the immediate vicinity of the proposed Project.

4.1.2 IMPACT ANALYSIS

a) Have substantial adverse effect on a scenic vista?

No Impact. The proposed Project includes construction of a 41.7-acre recharge basin. Scenic features in the area include the vast expanse of agricultural uses. The proposed basin would be constructed at approximately the same level as existing ground elevations in the areas, resulting in no potential views being obstructed. Additionally, the basin would be consistent with the overall character of the surrounding areas and would not stand out in any remarkable manner. As such, there would be no impact.

[1] (California Department of Transportation, 2018)

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

No Impact. There are no identified scenic resources, trees, rock outcroppings, or historic buildings within the Project site. There would be no components of the proposed Project that would cause obstruction to the general public view of natural features, nor would the proposed Project have an adverse effect on a scenic view. The nearest scenic highway to the proposed Project is SR 65, which is situated approximately five miles from the Project site. As such the Project site is not visible from a designated scenic highway. There would be no impact.

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

Less than Significant Impact. The visual character of the Project area is mostly dominated by existing agricultural lands and rural infrastructure. The basin would be consistent with agricultural uses and other uses in the area. Once construction activities are complete, the basin would not substantially degrade the visual character of the area, fitting cohesively with adjacent farmland circumscribing the Project site. Moreover, the proposed basin would be constructed at approximately the same level as existing ground elevations in the areas. There would be no impact.

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

No Impact. As stated above, the area surrounding the Project site consists of agricultural uses. There would not be any light fixtures being installed as part of the proposed Project. Vehicular traffic to the site after the facility is constructed would be limited to as needed daytime maintenance trips. Therefore, the proposed Project would not create a new source of substantial light or glare that would adversely affect day or nighttime views in the area or be inconsistent with existing conditions. Therefore, there would be no impact.

4.1.3 FEDERAL CROSS-CUTTING TOPIC

4.1.3.1 NATION WILD AND SCENIC RIVERS ACT OF 1968

The National Wild and Scenic Rivers Act was established in 1968, to maintain the natural beauty, biology, and wildness of federally designated "wild," "scenic," or "recreational" rivers that may be threatened by construction of dams, diversions, and canals. The act seeks to preserve these designated rivers in their free-flowing condition, and to protect their immediate environments for the benefit and enjoyment of present and future generations. California has approximately 189,454-miles of river, of which approximately 1,999-miles are designated as wild & scenic—1% of the state's river miles.[2] There are no "wild" or "scenic" rivers within or proximate to the basin site.

[2] (National Wild and Scenic Rivers System, 2025)

4.2 AGRICULTURE AND FORESTRY RESOURCES

Table 4-2: Agriculture and Forest Impacts

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

4.2.1 BASELINE CONDITIONS

The Project site is in a relatively flat area historically used for agriculture. The site is surrounded by land in agricultural use as well as sparse residences. The land surrounding the Project site is zoned for agricultural use, with the majority being designated as Prime Farmland or Farmland of Statewide Importance.

FARMLAND MAPPING AND MONITORING PROGRAM (FMMP): The California Department of Conservation's (DOC's) 2012 FMMP is a non-regulatory program that produces "Important Farmland" maps and statistical data used for analyzing impacts on California's agricultural resources. Agricultural land is rated according to soil quality and irrigation status; the best quality land is called Prime Farmland. The maps are updated every two years with the use of a computer mapping system, aerial imagery, public review, and field reconnaissance. The Important Farmland maps identify eight land use categories, five of which are agriculture related: Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Farmland of Local Importance, and Grazing Land – rated according to soil quality and irrigation status. Each is summarized below:[3]

- PRIME FARMLAND (P): Farmland with the best combination of physical and chemical features able to sustain long term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.
- FARMLAND OF STATEWIDE IMPORTANCE (S): Farmland similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Land must have been

[3] (California Department of Conservation, 2022)

used for irrigated agricultural production at some time during the four years prior to the mapping date.

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

As demonstrated in Figure 4-1

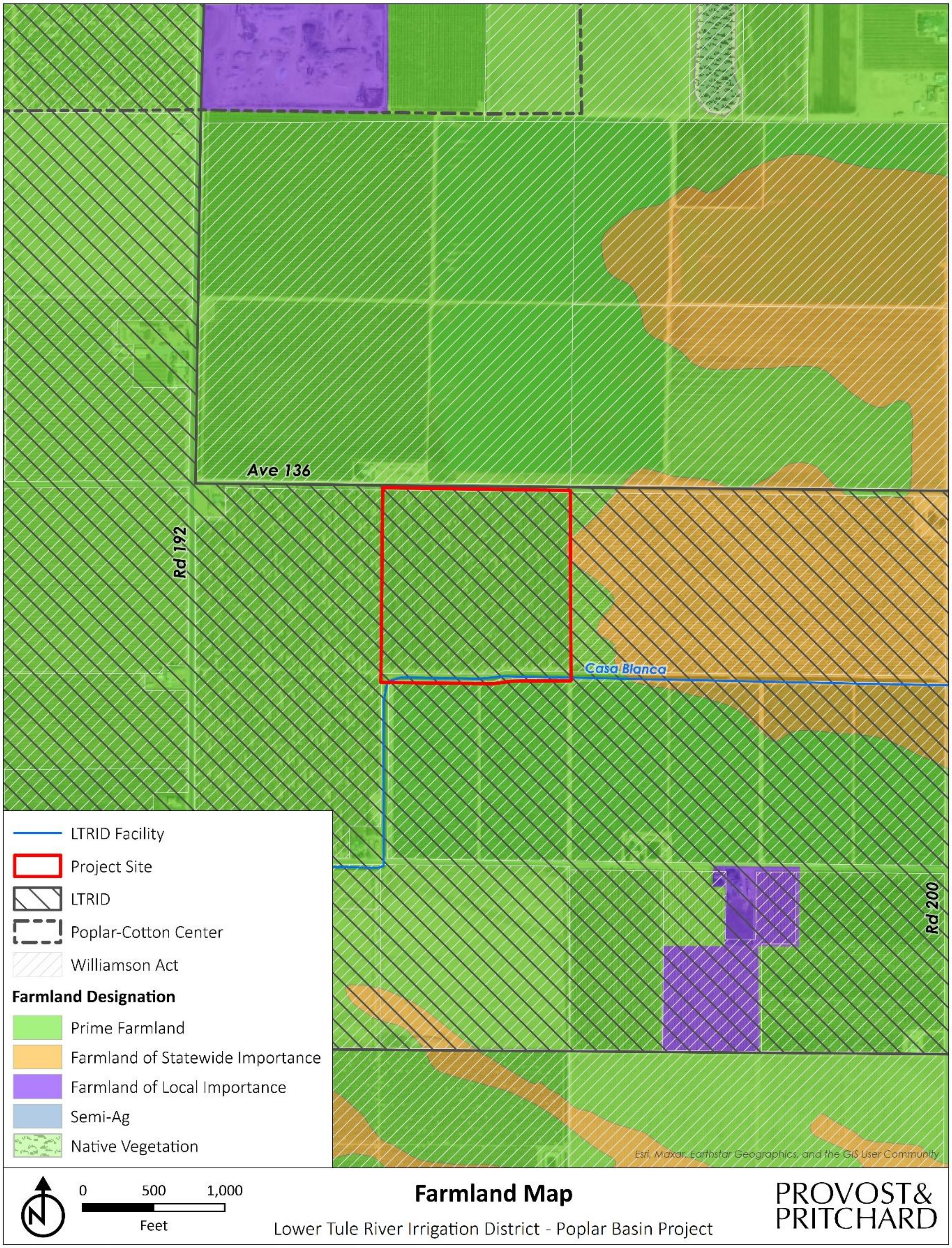

Figure 4-1, the FMMP for Tulare County designates the Project site as Prime Farmland and Farmland of Statewide Importance.[4] Adjacent land to the site is also designated as Prime Farmland and Farmland of Statewide Importance.

WILLIAMSON ACT: The Williamson Act, also known as the California Land Conservation Act of 1965, enables local governments to enter into contracts with private landowners for the purpose of restricting specific parcels of land to agricultural or related open space use. In return, landowners receive property tax assessments which are much lower than normal because they are based upon farming and open space uses as opposed to full market value.

The DOC assists all levels of government and landowners in the interpretation of the Williamson Act related government code. The DOC also researches, publishes, and disseminates information regarding the policies, purposes, procedures, and administration of the Williamson Act according to government code. Participating counties and cities are required to establish their own rules and regulations regarding implementation of the Act within their jurisdiction. These rules include, but are not limited to, enrollment guidelines, acreage minimums, enforcement procedures, allowable uses, and compatible uses. The Project site is presently under a Williamson Act Contract.

4.2.2 IMPACT ANALYSIS

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

Less than Significant Impact. The Project basin site is designated as Prime Farmland and Farmland of Statewide Importance. The proposed Project would technically convert the land from its existing agricultural use to a use that is considered Urban and Built-Up Land pursuant to the FMMP; however, the main purpose of said conversion is to support ongoing agricultural endeavors by putting to use surface water that would have been lost to the service area and enhancing groundwater availability. The proposed Project would entail the construction of a basin to utilize storm, flood, and other surface water that is not presently being put to use, which allows less groundwater to be pumped. The basin would ultimately benefit water resources that may be used for agricultural lands in the vicinity and thereby prevent other agricultural lands from being fallowed due to inadequate or costly recovery of declining groundwater water or lack of surface water supplies. Since the Project site would continue to serve an agricultural purpose, implementation of the proposed Project would not result in the conversion of farmland to nonagricultural use. Additionally, groundwater replenishment associated with the proposed Project is consistent with the goals of the SGMA. Impacts would be less than significant.

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

Less than Significant Impact. The California Government Code Section 53091(e) states, "[z]oning ordinances of a county or city shall not apply to the location or construction of facilities for the production, generation, storage, treatment, or transmission of water" and therefore cannot conflict with zoning for agricultural uses. The intent of the proposed Project is to store and recharge groundwater supplies, thereby sustaining agriculture. The proposed basin would facilitate greater security of groundwater storage for District growers, inherently promoting the agricultural zoning in the County and Williamson Act intentions. As such, impacts would be less than significant.

[4] (California Department of Conservation, 2022)

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?

c) and d) No Impact. There are no forests or timberland lands in the Project area or vicinity.[5] The proposed Project does not propose any rezoning; it would not convert forest land to non-forest use. There would be no impact.

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?

Less than Significant Impact. As previously mentioned, the proposed Project would convert the land from its existing agricultural use to a use that is considered Urban and Built-Up Land pursuant to the FMMP. Nonetheless, it would also benefit water resources that may be used for agricultural uses in the area. The proposed Project would likely result in continued farming on agricultural lands that might otherwise be fallowed due to lack of water. As such, impacts would be less than significant.

4.2.3 FEDERAL CROSS-CUTTING TOPIC

4.2.3.1 FARMLAND PROTECTION POLICY ACT OF 1981

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

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

The proposed Project is located on lands classified by the DOC as either Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance. These classifications recognize a land's suitability for agricultural production by considering the physical and chemical characteristics of the soil, such as soil temperature range, depth of the groundwater table, flooding potential, rock fragment content, and rooting depth. The classifications also consider location, growing season, and moisture available to sustain high-yield crops. Together, Important Farmland and Grazing Land are defined by the DOC as "Agricultural Land."

The proposed Project is located on lands that are classified as "Prime Farmland," which consists of lands suited for farmland with the best combination of physical and chemical features able to sustain long term agricultural production. This type of farmland land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. The basin would ultimately benefit water resources that may be used for agricultural lands in the vicinity and thereby prevent other agricultural lands from being fallowed due to inadequate or costly recovery of declining groundwater water or lack of surface water supplies. Since the Project site would continue to serve an agricultural purpose, implementation of the proposed Project would not result in the conversion of farmland. Therefore, the proposed Project would not conflict with the FPPA or adversely affect prime or unique farmland.

[5] (United States Forest Service)

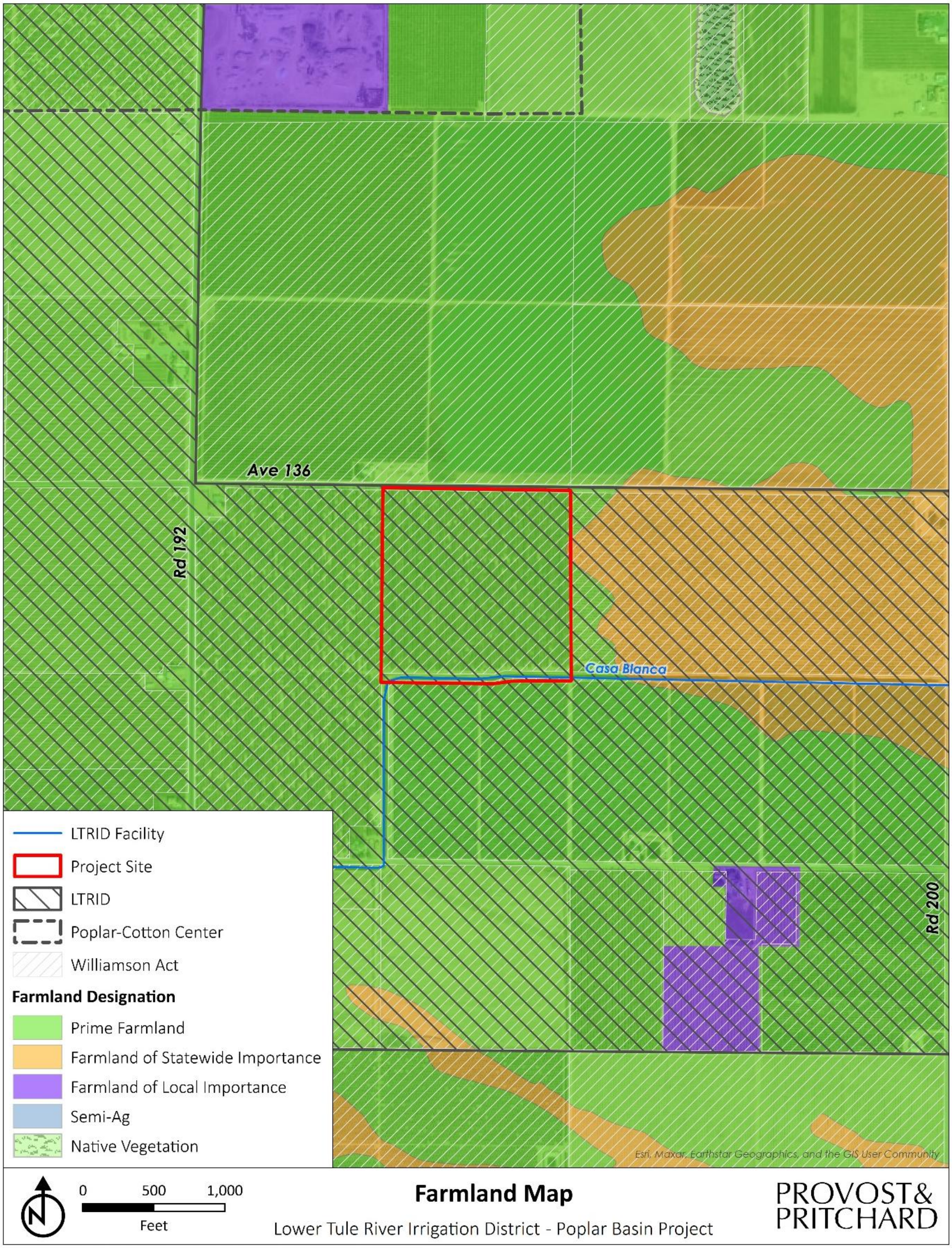

Figure 4-1: Farmland Designation Map

4.3 AIR QUALITY

Table 4-3: Air Quality Impacts

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

4.3.1 BASELINE CONDITIONS

The Project site is located within the southern boundaries of the San Joaquin Valley Air Pollution Control District (SJVAPCD) and the San Joaquin Valley Air Basin (SJVAB). The SJVAB is positioned within the San Joaquin Valley of California. The San Joaquin Valley is bounded by the Sierra Nevada Mountain Range to the east and the Coastal Mountain Range to the west. Wind within the SJVAB typically channels south-southwest during the summer months, while wind flows to the north-northwest during the winter months. Wind velocity for the region is considered low for an area of such size.[6] Due to a lack of strong wind and the natural confinement of the mountain ranges surrounding the SJVAB, the region experiences some of the worst air quality in the world.

4.3.1.1 REGULATORY ATTAINMENT DESIGNATIONS

Under the California Clean Air Act (CCAA), the California Air Resources Board (CARB) is required to designate areas of the State as attainment, nonattainment, or unclassified with respect to applicable standards. An "attainment" designation for an area signifies that pollutant concentrations did not violate the applicable standard in that area. A "nonattainment" designation indicates that a pollutant concentration violated the applicable standard at least once, excluding those occasions when a violation was caused by an exceptional event, as defined in the criteria. Depending on the frequency and severity of pollutants exceeding applicable standards, the nonattainment designation can be further classified as serious nonattainment, severe nonattainment, or extreme nonattainment, with extreme nonattainment being the most severe of the classifications. An "unclassified" designation signifies that the data does not support either an attainment or nonattainment designation. The CCAA divides districts into moderate, serious, and severe air pollution categories, with increasingly stringent control requirements mandated for each category. The United States Environmental Protection Agency (USEPA) designates areas for ozone, carbon monoxide (CO), and nitrogen dioxide (NO_2) as "does not meet the primary standards," "cannot be classified," or "better than national standards." For sulfur dioxide (SO_2), areas are designated as "does not meet the primary standards," "does not meet the secondary standards," "cannot be classified," or "better than national standards." However, the CARB terminology of attainment, nonattainment, and unclassified is more frequently used. The USEPA uses the same sub-categories for nonattainment status: serious, severe,

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

and extreme. In 1991, USEPA assigned new nonattainment designations to areas that had previously been classified as Group I, II, or III for particulate matter 10 microns in size (PM_{10}) based on the likelihood that they would violate national PM_{10} standards. All other areas are designated "unclassified." According to the USEPA San Joaquin – Tulare County was in non-attainment for one pollutant concentration, with particulate matter 2.5 microns in size ($PM_{2.5}$) (2012) being classified as in serious non-attainment.[7]

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

Pollutant	Averaging Time	State Standard	Federal Standard	State Attainment Status	Federal Attainment Status
OZONE (O_3)	*1 hour*	*0.09 ppm*	*N/A*	*Nonattainment/ Severe*	*N/A*
	8 hours	*0.070 ppm*	*0.070 ppm (4th highest in 3 years)*	*Nonattainment*	*Nonattainment/ Extreme*
CARBON MONOXIDE (CO)	*1 hour*	*20 ppm*	*35 ppm*	*Attainment/ Unclassified*	*Attainment/ Unclassified*
	8 hours	*9.0 ppm*	*9 ppm*		
PARTICULATE MATTER (PM_{10})	*24 hours*	*50 $\mu g/m^3$*	*150 $\mu g/m^3$ (expected number of days above standard < or equal to 1)*	*Nonattainment*	*Attainment*
	Annual	*20 $\mu g/m^3$*	*N/A*	*Nonattainment*	*N/A*
FINE PARTICULATE MATTER ($PM_{2.5}$)	*24 hours*	*N/A*	*35 $\mu g/m^3$*	*N/A*	*Nonattainment*
	Annual	*12 $\mu g/m^3$*	*12.0 $\mu g/m^3$*	*Nonattainment*	
NITROGEN DIOXIDE (NO_2)	*1 hour*	*0.18 ppm*	*0.100 ppm*	*Attainment*	*Attainment/ Unclassified*
	Annual	*0.030 ppm*	*0.053 ppm*		
SULFUR DIOXIDE (SO_2)	*1 hour*	*0.25 ppm*	*0.075 ppm (99th percentile over 3 years)*	*Attainment*	*Attainment/ Unclassified*
	3 hours	*N/A*	*0.5 ppm*	*N/A*	
	24 hours	*0.04 ppm*	*0.14 ppm*	*Attainment*	
	Annual	*N/A*	*0.030 ppm*	*N/A*	
LEAD (PB)	*Monthly*	*1.5 $\mu g/m^3$*	*N/A*	*Attainment*	*N/A*
	Rolling 3-month average	*N/A*	*0.15 $\mu g/m^3$*	*N/A*	*Attainment/ Unclassified*
SULFATES (SO_4)	*24 hours*	*25 $\mu g/m^3$*	*N/A*	*Attainment*	*N/A*
HYDROGEN SULFIDE (H_2S)	*1 hour*	*0.03 ppm*	*N/A*	*Unclassified*	*N/A*
VISIBILITY-REDUCING PARTICLE MATTER	*8 hours*	*Visibility of 10 miles or more at relative humidity less than 70 %*	*N/A*	*Unclassified*	*N/A*
VINYL CHLORIDE (C_2H_3CL)	*24 hours*	*0.01 ppm*	*N/A*	*Attainment*	*N/A*

** For more information on standards visit: https://ww3.arb.ca.gov/research/aaqs/aaqs2.pdf*
*** No Federal 1-hour standard. Reclassified extreme nonattainment for the Federal 8-hour standard [4/28/2025].*
****Secondary Standard*
Source: http://www.valleyair.org/aqinfo/attainment.htm. Accessed 2015

[7] (United States Environmental Protection Agency, 2025)

4.3.1.1.1 CONSTRUCTION-GENERATED EMISSIONS

Construction of the proposed Project is assumed to be completed over the course of four to six months and start in the fall of 2025. Emissions associated with the proposed Project were calculated using California Emissions Estimator Modeling (software) (CalEEMod), Version 2022.1.1.29. The emissions modeling includes emissions generated by off-road equipment, haul trucks, and worker commute trips. All other assumptions are based upon the default parameters contained in the model. Localized air quality impacts associated with the proposed Project would be minor and were qualitatively assessed. Modeling assumptions and output files are included in Appendix A.

4.3.1.2 THRESHOLDS OF SIGNIFICANCE

Air pollutant emissions have regional effects and localized effects. This analysis assesses the regional effects of the proposed Project's criteria pollutant emissions in comparison to SJVAPCD thresholds of significance for short-term construction activities and long-term operation of the proposed Project. Localized emissions from Project construction and operation are also assessed using concentration-based thresholds that determine if the proposed Project would result in a localized exceedance of any ambient air quality standards or would make a cumulatively considerable contribution to an existing exceedance. The primary pollutants of concern during Project construction and operation are ROG (reactive organic gases), NO_X, PM_{10}, and $PM_{2.5}$. The SJVAPCD Guide for Assessing and Mitigating Air Quality Impacts (GAMAQI) adopted in 2015 contains thresholds for ROG and Nitrogen Oxides (NO_X); Sulfur Oxides (SO_X), CO, PM_{10}, and $PM_{2.5}$. Ozone is a secondary pollutant that can be formed miles away from the source of emissions through reactions of ROG and NO_X emissions in the presence of sunlight.[8] Therefore, ROG and NO_X are termed ozone precursors. The SJVAB often exceeds the State and national ozone standards. Therefore, if the proposed Project emits a substantial quantity of ozone precursors, the Project may contribute to an exceedance of the ozone standard. The SJVAB also exceeds air quality standards for PM_{10}, and $PM_{2.5}$; therefore, substantial Project emissions may contribute to an exceedance for these pollutants.

The SJVAPCD adopted significance thresholds for construction-related and operational-related ROG, NO_X, PM_{10}, $PM_{2.5}$, CO, and SO_X, these thresholds are included in Table 4-5.

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

Pollutant	Significance Threshold	
	Construction Emissions (tons/year)	Operational Emissions (tons/year)
CO	100	100
NO_x	10	10
ROG	10	10
SO_x	27	27
PM_{10}	15	15
$PM_{2.5}$	15	15
Source: SJVAPCD. 2015. Guidance for Assessing and Mitigating Air Quality Impacts. Website: https://ww2.valleyair.org/media/g4nl3p0g/gamaqi.pdf. Accessed April 28, 2025.		

4.3.2 IMPACT ANALYSIS

4.3.2.1 CONSTRUCTION-GENERATED EMISSIONS

Estimated construction-generated emissions are summarized in Table 4-6. Due to the passive nature of basin, long-term operational emissions would be negligible and would not exceed any set threshold governing air quality emission generation within the SJVAPCD.

[8] (District, 2015)

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

Source	Annual Emissions (TPY[1])					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Maximum Annual Project Construction Emissions	0.15	1.34	1.32	<0.005	0.18	0.10
SJVAPCD Threshold	*10*	*10*	*100*	*27*	*15*	*15*
Threshold Exceeded?	No	No	No	No	No	No
[1]TPY – Tons per Year						

4.3.2.2 MAXIMUM DAILY EMISSIONS OF CRITERIA AIR POLLUTANTS

Daily construction emissions generated by the proposed Project are summarized in Table 4-7.

Table 4-7 Maximum Daily Emissions of Criteria Air Pollutants

Source	Daily Emissions Maximum (in pounds)					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Construction – Summer	6.68	59.1	61.8	0.11	8.78	5.15
Construction – Winter	3.29	29.8	29.1	0.06	3.74	2.11
SJVAPCD SJVAB Threshold	*100*	*100*	*100*	*100*	*100*	*100*
Threshold Exceeded?	No	No	No	No	No	No

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

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

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

Less than Significant Impact. The proposed Project would construct an approximately 41.7-acre recharge basin facility, two new turnout connections, and approximately 100 feet of pipeline. There would not be a cumulatively considerable net increase of any criteria pollutant for which the Project region is in non-attainment. As shown in Table 4-7, and Table 4-8, the proposed Project would not exceed an emissions threshold which has been set by the SJVAPCD for construction related emissions. Due to the passive nature of basins, long-term operational emissions would be negligible and would not exceed any set threshold governing air quality emission generation within the SJVAPCD. Therefore, impacts would be less than significant.

c) Would the project expose sensitive receptors to substantial pollutant concentrations?

Less than Significant Impact. The proposed Project would not expose sensitive receptors to substantial pollutant concentrations. Sensitive Receptors are groups that would be more affected by air, noise, and light pollution, pesticides, and other toxic chemicals than others. This includes infants, children under 16, elderly over 65, athletes, and people with cardiovascular and respiratory diseases. High concentrations of these groups would include daycares, residential areas, hospitals, elder care facilities, schools and parks. The proposed Project would result in the construction of an approximately 41.7-acre recharge basin and associated facilities in rural Tulare County. The temporary nature of construction generated emissions and the fact that construction would move throughout the site and is not concentrated next to sensitive receptors makes it unlikely that a significant impact would result from the proposed Project.

Additionally, the proposed Project would not result in construction or operational emissions that would result in an exceedance of a set threshold. Therefore, impacts would be less than significant.

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

Less than Significant Impact. During construction activities, construction equipment exhaust, and other construction applications would temporarily emit odors. Construction would be completed within a rural area of Tulare County and would have a temporary effect on some rural residences which would be located near the construction area of the proposed Project. Construction of the proposed Project would be temporary, and odors would not remain after Project completion. Therefore, impacts would be less than significant.

4.3.3 FEDERAL CROSS-CUTTING TOPIC

4.3.3.1 CLEAN AIR ACT (CAA)

Under the federal Clean Air Act (CAA), federal actions conducted in air basins that are not in attainment with the federal ozone standard (such as the SJVAB) must demonstrate conformity with the State Implementation Plan (SIP). Conformity to a SIP is defined in the federal CAA as meaning conformity to a SIP's purpose of eliminating or reducing the severity and number of violations of the national standards and achieving an expeditious attainment of such standards. The SJVAPCD has published Regulation IX, Rule 9110 (referred as the General Conformity Rule) that indicates how most federal agencies can make such a determination.[9]

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

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

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

[9] (District, RULE 9110, 2025)

4.4 BIOLOGICAL RESOURCES

Table 4-8: Biological Resources Impacts

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☐	☒	☐
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☒	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☒
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☒	☐
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☒	☐

4.4.1 BASELINE CONDITIONS

The Project site is located in the San Joaquin Valley. The San Joaquin Valley is bordered by the Sierra Nevada to the east, the Tehachapi Mountains to the south, the California coastal ranges to the west, and the Sacramento-San Joaquin Delta to the north. The topography of the Project site is relatively flat with an elevation of approximately 370 feet above sea level. The Project site is circumscribed by agricultural lands along with sparse residences.

4.4.1.1 CLIMATE

Like most of California, the Project area experiences a Mediterranean climate. Warm, dry summers are followed by cool, moist winters. In the summer, average high temperatures range between 95- and 105-degrees Fahrenheit (°F), but do not often exceed 110 °F, and the humidity is generally low. Winter temperatures are often below 70 °F during the day and rarely exceed 75 °F. On average, Porterville, CA receives approximately 5.8 inches of precipitation in the form of rain yearly, most of which occurs between October and March, and the Project site would be expected to receive similar amounts of precipitation.

4.4.1.2 HYDROLOGY

The nearest surface water to the proposed Project is the Casa Blanca Ditch which runs along the southern edge of the Project site. Stormwater or snowmelt runoff from upland areas flows into Frazier Creek, which flows into the Friant-Kern Canal. As the Friant-Kern Canal continues south, it crosses over with Porter Slough, Hubbs Miner Ditch, Wood Central Ditch, and Poplar Ditch. Further south Friant-Kern Canal gets diverted into irrigation canals throughout cropland south of Poplar Cotton Center, CA. Casa Blanca Ditch receives water from these neighboring irrigation canals.

4.4.1.3 SOILS

Two soil mapping units representing ten soil types were identified within the Project site and are listed in (see Appendix B for the Web Soil Survey Report). The soils are displayed with their core properties in the table below, according to the Major Land Resource Area of California. All ten soils are primarily used for grazing, wildlife habitat, and watershed areas.

Table 4-9: List of Soils Located on the APE and Their Basic Properties

Soil	Soil Map Unit	Percent of APE	Hydric Soil Category	Drainage	Permeability	Runoff
Exeter	Loam, 0 to 2 percent slopes	0.2%	Predominantly Nonhydric	Moderately well drained	Low to moderately low	Medium
Flamen	Loam, 0 to 2 percent slopes	99.8%	Predominantly Nonhydric	Moderately well drained	Moderate	Low

Hydric soils are defined as soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions such that under sufficiently wet conditions, hydrophytic vegetation can be supported. Hydric soil ratings are derived from specific soil properties as well as climate, parent material, vegetation, landform type, and biological activity of a certain location. None of the major or minor soil mapping units located on the Project site were identified as hydric.

4.4.1.4 BIOTIC HABITATS WITHIN THE PROJECT AREA

A biological field survey of the approximately 41.7-acre site was performed on March 20, 2025. Three biotic habitats were observed within the Project site and included agricultural and canal. These habitats and their constituent plant and animal species are described in more detail in the following sections.

4.4.1.4.1 NON-NATIVE GRASSLAND

The Project site is primarily located on a fallow agricultural field used previously for almond cultivation and is surrounded by active cropland. The Project site was densely vegetated within this habitat type and dominated by common chickweed (*Stellaria media*), common sowthistle (*Sonchus oleraceus*), Musky stork's bill (*Erodium moschatum*), prickly lettuce (*Lactuca serriola*), rigid fiddleneck (*Amsinckia menziesii*), and bromes (*Bromus* spp.). Other plants identified within the Project site include common groundsel (*Senecio vulgaris*), cheeseweed mallow (*Malva parviflora*), almond (*Prunus amygdalus*), common dandelion (*Taraxacum officinale*), common wheat (*Triticum aestivum*), foxtail barley (*Hordeum jubatum*), great brome (*Bromus diandrus*), henbit deadnettle (*Lamium amplexicaule*), miniature lupine (*Lupinus bicolor*), purple owl's clover (*Castilleja exserta*), redstem filaree (*Erodium cicutarium*), sheperd's purse (*Capsella bursa-pastoris*), and willow herb (*Epilobium ciliatum*). The fungus pale brittlestem (*Candolleomyces candolleanus*) was also identified. Sporadically throughout this habitat there were dense patches of decaying plant matter completely covering the soil and smelled strongly of fertilizer. These patches were much less vegetated than the rest of the grassland but included almond saplings and pale brittlestem.

The survey of the Project site resulted in the identification of numerus bird species including American crow (*Corvus brachyrhynchos*), American robin (*Turdus migratorius*), black phoebe (*Sayornis nigricans*), California scrub-jay (*Aphelocoma californica*), common raven (*Corvus corax*), house finch (*Haemorhous mexicanus*), killdeer (*Charadrius vociferus*), lesser goldfinch (*Spinus psaltria*), mourning dove (*Zenaida macroura*), northern mockingbird (*Mimus polyglottos*), red-tailed hawk (*Buteo jamaicensis*), Say's phoebe (*Sayornis saya*), savannah sparrow (*Passerculus sandwichensis*), turkey vulture (*Cathartes aura*), white-crowned sparrow (*Zonotrichia leucophrys*), western bluebird (*Sialia mexicana*), and yellow-rumped warbler (*Setophaga coronata*). Invertebrates observed in this habitat included Asian lady beetle (*Harmonia axyridis*), common milkweed bug (*Lygaeus kalmia*), and unidentified bees. Coyote (*Canis latrans*) scat and tracks were also observed adjacent to Avenue 136.

The non-native grassland habitat within the Project site is severely disturbed from past use but after undergoing early succession, it now provides densely vegetated habitat to a variety of wildlife year-round. The Project site serves foraging birds, including raptors, during the day, as well as coyotes and other nocturnal animals at night.

4.4.1.4.2 CANAL

The canal habitat included Casa Blanca Ditch which runs along the southern edge of the Project site. Vegetation found within the canal was scarce but included invasive grasses and filamentous algae. Only one small burrow was observed in the entire Project site near the southeastern corner along the canal. The burrow was possibly created by a small rodent, but no scat, tracks, or indication of recent use was observed to aid in identification. While this habitat represents a very minimal portion of the Project site, it is possible for wildlife and plants to utilize this habitat. Casa Blanca Ditch likely act as a corridor for terrestrial wildlife such as mammals, reptiles, and vertebrates when dry. Birds, bats, rodents, larger mammals, invertebrates, and reptiles likely use this as a water source when water is present.

4.4.1.4.3 RUDERAL

The ruderal habitat of the Project site contained hard packed dirt roads along the northern side of the canal and composed a very small portion of the Project site. Vegetation in this section of the site was mostly bare besides sparse invasive grasses in along the in between the different habitat types. The survey of this habitat did not result in any new species observations. It is possible for wildlife (including but not limited to mammals such as coyotes) to use the roads within this habitat, especially at night. It is possible for bird who construct nests on the ground such as killdeer and mourning doves to utilize said area for nests, notable during nesting bird season. Miniature lupine and purple owl's clover were observed growing close to the boundary between the non-native grassland habitat and ruderal habitat, meaning it is possible for said species to disperse along the dirt roads.

4.4.1.5 NATURAL COMMUNITIES OF SPECIAL CONCERN AND RIPARIAN HABITAT

Natural communities of special concern are those that are of limited distribution, distinguished by significant biological diversity, or home to special status species. California Fish and Wildlife (CDFW) has classified and mapped all natural communities in California. Just as the special status plant and animal species, these natural communities of special concern can be found within the California Natural Diversity Database (CNDDB). There are no recorded observations of a natural community of special concern mapped within the site and no natural communities of special concern were observed during the field survey.

4.4.1.6 DESIGNATED CRITICAL HABITAT

The United States Fish and Wildlife Service (USFWS) often designates areas of "critical habitat" when it lists species as threatened or endangered. Critical habitat is a specific geographic area that contains features essential for the conservation of a threatened or endangered species, which may require special management and protection. According to the United States Fish and Wildlife Service's Information for

Planning and Consultation system (IPaC), designated critical habitat is absent from the Project site and vicinity.

4.4.1.7 WILDLIFE MOVEMENT CORRIDORS AND NATIVE WILDLIFE NURSERY SITES

Wildlife movement corridors are routes that animals regularly and predictably follow during seasonal migration, dispersal from native ranges, daily travel within home ranges, and inter-population movements. Movement corridors in California are typically associated with valleys, ridgelines, and rivers and creeks supporting riparian vegetation. The canal habitat could potentially act as a corridor for terrestrial wildlife during the dry season, however, the surrounding area is highly disturbed and would discourage use of the canal for dispersal activities.

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

4.4.1.8 SPECIAL STATUS PLANTS AND ANIMALS

California contains several rare plant and animal species. In this context, “rare” is defined as a species known to have low populations or limited distributions. Conversion of habitats to accommodate human population growth in turn reduces the already-limited suitable habitat for rare species. This results in rare and sensitive species becoming increasingly more vulnerable to extirpation. State and federal regulations have provided the CDFW and USFWS with mechanisms for conserving and protecting the diversity of plant and animal species native to California. Numerous native plants and animals have been formally designated as “threatened” or “endangered” under State and federal endangered species legislation. Other formal designations include “candidate” for listing or “species of special concern” by CDFW. The California Native Plant Society (CNPS) has its list of native plants considered rare, threatened, or endangered. Collectively these animals and plants are referred to as “special status species.”

A query of the CNDDB for occurrences of special status plant and animal species was conducted for the *Woodville* United States Geological Survey (USGS) 7.5-minute quadrangle that contains the Project site, and for the 8 surrounding USGS quadrangles: *Cairns Corner*, *Ducor*, *Lindsay*, *Pixley*, *Porterville*, *Sausalito School*, *Tipton*, and *Tulare*. A query of the IPaC was also completed for the Project site. These species, and their potential to occur within the Project site, are listed in Table 4-10 and Table 4-11, below. Other special status species that did not show up in the CNDDB query, but have the potential to occur in the vicinity, are also included in Table 4-11. Species lists obtained from CNDDB and IPaC are available in Appendix B, respectively. All relevant sources of information, as discussed in the Study Methodology section of this report, as well as field observations, were used to determine if any special status species have the potential to occur within the Project site.

Table 4-10: List of Special Status Plants with Potential to Occur on the APE and/or in the Vicinity

Species	Status*	Habitat	Occurrence within the APE
Alkali-sink goldfields (*Lasthenia chrysantha*)	CNPS 1B	Found in vernal pool and wet saline flat habitats in the San Joaquin Valley region at elevations below 700 feet. Blooms February – April.	**Absent**. The Project site lacked suitable habitat for this species.
Brittlescale (*Artiplex depressa*)	CNPS 1B	Found in the Central Valley in alkaline or clay soils, typically in meadow or annual grassland habitats at elevations below 1,100 feet. Sometimes associated with vernal pools. Blooms June – October.	**Absent**. The Project site lacked suitable habitat for this species.
Calico monkeyflower (*Diplacus pictus*)	CNPS 1B	Found in the Sierra Nevada foothills and the Tehachapi Mountains are in bare, sunny, shrubby areas, around granite outcrops within foothill woodland communities at elevations between 450 and 4,100 feet. Blooms March – May.	**Absent**. The Project site lacked suitable habitat for this species.
California alkali grass (*Puccinellia simplex*)	CNPS 1B	Found in the San Joaquin Valley and other parts of California in saline flats and mineral springs within valley grassland and wetland-riparian communities at elevations below 3,000 feet. Blooms March – May.	**Absent**. The Project site lacked suitable habitat for this species.
California jewelflower (*Caulanthus californicus*)	FE, CE, CNPS 1B	Found in the San Joaquin Valley and western Transverse Ranges in sandy soils. Occurs on flats and slopes, generally in non-alkaline grassland at elevations between 200 and 6,100 feet. Blooms February – April.	**Absent**. The Project site lacked suitable habitat for this species.
Earlimart orache (*Atriplex cordulata var. erecticaulis*)	CNPS 1B	Found in the San Joaquin Valley in saline and alkaline soils, typically within valley grasslands at elevations below 400 feet. Blooms August – September.	**Absent**. The Project site lacked suitable habitat for this species.
Kern mallow (*Eremalche parryi ssp. kernensis*)	FE, CNPS 1B	Occurs in the San Joaquin Valley and the Southern Inner Coast Ranges in eroded hillsides and alkali flats and often on dry, open, sandy to clay soils and within alkali scrub communities at elevations between 200 and 4,300 feet. Blooms March – May.	**Absent**. The Project site lacked suitable habitat for this species.
Lesser saltscale (*Atriplex minuscula*)	CNPS 1B	Found in the San Joaquin Valley in sandy, alkaline soils in alkali scrub, valley, and foothill grassland, and alkali sink communities at elevations below 750 feet. Blooms April – October.	**Absent**. The Project site lacked suitable habitat for this species.
Lost Hills crownscale (*Atriplex coronata var. vallicola*)	CNPS 1B	Found in the San Joaquin Valley in dried ponds and vernal pools with alkaline soils in alkali scrub and valley and foothill grasslands at	**Absent**. The Project site lacked suitable habitat for this species.

Species	Status*	Habitat	Occurrence within the APE
		elevations below 2,900 feet. Blooms April – September.	
Recurved larkspur (*Delphinium recurvatum*)	CNPS 1B	Occurs in chenopod scrub, cismontane woodland, and grassland habitats on poorly drained, fine, alkaline soils; often in valley saltbush or valley chenopod scrub communities at elevations between 100 and 2,600 feet. Blooms March – June.	**Absent**. The Project site lacked suitable habitat for this species.
San Joaquin adobe sunburst (*Pseudobahia peirsonii*)	FT, CE, CNPS 1B	Occurs in the San Joaquin Valley and the Sierra Nevada foothills in bare, dark, clay soils in valley and foothill grassland and cismontane woodland communities at elevations between 300 and 3,000 feet. Bloom March – May.	**Absent**. The Project site lacked suitable habitat for this species.
San Joaquin woollythreads (*Monolopia congdonii*)	FE, CNPS 1B	Occurs in the San Joaquin Valley in sandy soils on alkaline or loamy plains in valley and foothill grassland and alkali scrub communities at elevations between 150 and 2,800 feet. Blooms February – May	**Absent**. The Project site lacked suitable habitat for this species.
Springville clarkia (*Clarkia springvillensis*)	FT, CE, CNPS 1B	Endemic to the woodlands and grasslands of the southern Sierra Nevada, occurring primarily in the Tule River watershed. Found at elevations between 650 and 7,400 feet. Blooms in May.	**Absent**. The Project site lacked suitable habitat for this species.
Striped adobe-lilly (*Fritillaria striata*)	CT, CNPS 1B	Found in the Sierra Nevada foothills in adobe soil within valley grassland and foothill woodland communities at elevations below 3,300 feet. Blooms February – April.	**Absent**. The Project site lacked suitable habitat for this species.
Subtle orache (*Atriplex subtilis*)	CNPS 1B	Found in the San Joaquin Valley in saline depressions in alkaline soils within valley and foothill grassland communities at elevations below 300 feet. Blooms June – October.	**Absent**. The Project site lacked suitable habitat for this species.
Vernal pool smallscale (*Atriplex persistens*)	CNPS 1B	Occurs in the Central Valley in alkaline vernal pools at elevations below 400 feet. Blooms June – October.	**Absent**. The Project site lacked suitable habitat for this species.

Table 4-11: List of Special Status Animals with Potential to Occur on the APE and/or in the Vicinity

Species	Status*	Habitat	Occurrence within the APE
American badger (*Taxidea taxus*)	CSSC	Prefers drier open stages of shrub, forest, and herbaceous habitats with friable soils to burrow, but can be found within numerous habitats throughout California, including the margins of agricultural lands. Needs a sufficient prey base of burrowing rodents.	**Unlikely**. The Project site and surrounding areas are frequently cultivated agricultural lands and non-native grassland that are unsuitable for this species. No burrows of appropriate size were observed during the survey. The nearest recorded observation of this species within the vicinity was

Species	Status*	Habitat	Occurrence within the APE
			approximately two miles east of the Project site during an unknown year.
Bakersfield legless lizard (*Anniella grinnelli*)	CSSC	Can be found burrowing in moist, sandy soil within grassland, sand/dune, or chaparral habitats. Fallen logs, woody debris, and leaf litter under trees and bushes in sunny areas often indicate suitable habitat. The current known range is restricted to the east side of the Carrizo Plain and within the city limits of Bakersfield.	**Unlikely**. The Project site and surrounding areas are frequently cultivated agricultural lands and non-native grassland that are unsuitable for this species. The nearest recorded observation of this species within the vicinity was approximately 13.7 miles southwest of the Project site during 20199.
Blunt-nosed leopard lizard (*Gambelia sila*)	FE, CE, CFP	Occurs in the San Joaquin Valley region in expansive, arid areas with scattered vegetation. Today they inhabit non-native grassland and alkali sink scrub communities of the valley floor marked by poorly drained, alkaline, and saline soils. They can be found at elevations ranging from approximately 100 to 2,600 feet. They are absent from areas with steep slopes and dense vegetation, and areas subject to seasonal flooding. Adults may excavate shallow burrows but rely on deeper pre-existing rodent burrows for hibernation and reproduction.	**Unlikely**. The Project site and surrounding areas consisted of ruderal/ non-native grassland habitat and agricultural fields that are densely vegetated. Insufficient habitat for hibernation and reproduction as only one unoccupied burrow was observed in the entire Project site. The nearest recorded observation of this species within the vicinity was approximately nine miles west of the Project site in 1911.
Buena Vista Lake ornate shrew (*Sorex ornatus relictus*)	FE, CSSC	Prefers moist soils, inhabiting marshes, swamps, and riparian shrublands in the Tulare Basin. Use stumps, logs, and leaf litter for cover.	**Absent**. The Project site and surrounding areas consisted of ruderal habitat and agricultural fields/ non-native grassland which do not the aquatic and riparian habitat required by this species.
Burrowing owl (*Athene cunicularia*)	CC, CSSC	Resides in open, dry grasslands, deserts, scrublands, and other areas with low growing vegetation. Nests and roosts underground in existing burrows created by mammals, most often by ground squirrels, and human-made structures.	**Unlikely**. The Project site and surrounding areas do not have burrows for this species to utilize. While the non-native grassland habitat could act as foraging habitat for this species, this habitat was also present throughout the region. The nearest recorded observation of this species within the vicinity was approximately 12 miles southwest of the Project site in 1993.
Coast horned lizard (*Phrynosoma blainvilii*)	CSSC	Found in grasslands, coniferous forests, woodlands, and chaparral, primarily in open areas with patches of loose, sandy soil and low-lying vegetation in valleys, foothills, and semi-arid mountains. Frequently found near ant hills and	**Unlikely**. The Project site is highly disturbed due to surrounding agricultural cultivation. The nearest recorded observation of this species within the vicinity was approximately 13.7 miles

Species	Status*	Habitat	Occurrence within the APE
		along dirt roads in lowlands along sandy washes with scattered scrubs.	southwest of the Project site in 1992.
Conservancy fairy shrimp (*Branchinecta conservatio*)	FE	Found in large, turbid freshwater vernal pools in the Central Valley, from Tehama County in the north to Merced County in the south, with one outlying population in Ventura County's Interior Coast Ranges.	**Absent**. No vernal pools were observed within the Project site.
Crotch's bumble bee (*Bombus crotchii*)	CCE	Occurs throughout coastal California, as well as east to the Sierra Nevada – Cascade crest, and south into Mexico. Food plant generally includes snapdragons, scorpionweeds, primroses, poppies, and buckwheats. Nests are often located underground in abandoned rodent nests, or aboveground in the tufts of grass, old bird nests, rock piles, or cavities in dead trees. This species overwinters under leaf litter or soft soil.	**Unlikely**. The site is highly disturbed due to surrounding agricultural cultivation and lacks suitable plant species to sustain this species. The nearest recorded observation of this species within the vicinity was approximately 6.6 miles east of the Project site in 1963.
Loggerhead shrike (*Lanius ludovicianus*)	CSSC	Frequents open habitats with sparse shrubs and trees, other suitable perches, bare ground, and low herbaceous cover. In the Central Valley, this species nests in riparian areas, desert scrub, and agricultural hedgerows.	**Unlikely**. The Project site is highly disturbed due to surrounding agricultural cultivation. The lack of rodent and small reptile signs indicates inadequate foraging opportunity for this species. The nearest recorded observation of this species within the vicinity was approximately nine miles west of the Project site in 1918.
Northern California legless lizard (*Anniella pulchra*)	CSSC	Found primarily underground, burrowing in loose, moist, and sandy soil. Forages in loose soil and leaf litter during the day. Occasionally observed on the surface at dusk and night.	**Unlikely**. The Project site is highly disturbed due to surrounding agricultural cultivation and lacked adequate open ground to burrow. The nearest recorded observation of this species within the vicinity was approximately 6.6 miles east of the Project site in 1940.
Northwestern pond turtle (*Actinemys marmorata*)	FPT, CSSC	An aquatic turtle of ponds, marshes, slow-moving rivers, streams, and irrigation ditches with riparian vegetation. Requires adequate basking sites and sandy banks or grassy open fields to deposit eggs.	**Unlikely**. The Project site is highly disturbed due to surrounding agricultural cultivation and lacks riparian vegetation and adequate aquatic habitat. The nearest recorded observation of this species within the vicinity was approximately 17.2 miles east of the Project site in 1988.
San Joaquin coachwhip (*Masticophis flagellum ruddocki*)	CSSC	Found in open dry habitats with little or no tree cover in valley grassland and saltbush scrub communities in the San Joaquin Valley from the Grapevine north	**Unlikely**. The Project site is highly disturbed due to surrounding agricultural activity. The Project site lacks burrows for this species to utilize for

Species	Status*	Habitat	Occurrence within the APE
		into the inner South Coast Ranges and to Alameda County. Relies on mammal burrows for refuge and oviposition sites.	cover and reproduction. The nearest recorded observation of this species within the vicinity was approximately 14.5 miles southwest of the Project site in 1992.
San Joaquin kit fox (*Vulpes macrotis mutica*)	FE, CT	Opportunistically forages in a variety of habitats. Dens in burrows within alkali sink, valley grassland, and woodland habitats in valleys and adjacent foothills and in human-made structures in cities, rangeland, and agricultural areas. Occurs in the San Joaquin Valley and other smaller valleys to the west.	**Unlikely**. The Project site is highly disturbed due to surrounding agricultural cultivation and lacked adequate open ground to burrow. No potential kit fox dens were identified during the survey. The nearest recorded observation of this species within the vicinity was approximately 1.5 miles east of the Project site in 1975.
Swainson's hawk (*Buteo swainsoni*)	CT	Nest in large trees in open areas adjacent to grasslands, grain or alfalfa fields, or livestock pastures suitable for supporting rodent populations.	**Unlikely**. While the Project site did contain fields this species could forage in, no nesting habitat was present. The nearest recorded observation of this species within the vicinity was approximately 4.2 miles northeast of the Project site in 2017.
Tipton kangaroo rat (*Dipodomys nitratoides nitratoides*)	FE, CE	Inhabits saltbush scrub and sink scrub communities in the Tulare Lake Basin of the southern San Joaquin Valley. This species needs soft friable soils to burrow.	**Unlikely**. The Project site and surrounding area lack both saltbush and sink scrub and is highly disturbed due to surrounding agricultural activity. The nearest recorded observation of this species within the vicinity was approximately nine miles west of the Project site in 1927.
Tricolored blackbird (*Agelaius tricolor*)	CT, CSSC	Nests colonially near fresh water in dense cattails or tules, or in thickets of riparian shrubs. Forages in grassland and cropland. Large colonies are often found foraging in dairy farm feed fields.	**Unlikely**. While the Project site contained fields this species could forage in, no nesting habitat was present. The nearest recorded observation of this species within the vicinity was approximately 4.7 miles southwest of the Project site in 1935.
Tulare grasshopper (*Onychomys torridus tularensis*)	CSSC	Typically inhabits arid shrubland communities in hot, arid grassland and shrubland associations.	**Unlikely**. The Project site is highly disturbed due to surrounding agricultural cultivation. The nearest recorded observation of this species within the vicinity was approximately 11.6 miles southwest of the Project site in 1903.
Vernal pool fairy shrimp (Branchinecta lynchi)	FT	Occupies vernal and seasonal pools, with clear to tea-colored water, in grass or mud-bottomed swales, and basalt depression pools.	**Absent**. No vernal pools were observed within the Project site and the Project site is unsuitable for this species.

Species	Status*	Habitat	Occurrence within the APE
Western spadefoot (*Spea hammondii*)	FPT, CSSC	The majority of the time this species is terrestrial and occurs in small mammal burrows and soil cracks, sometimes in the bottom of dried pools. Prefers open areas with sandy or gravelly soils, in a variety of habitats including mixed woodlands, grasslands, coastal sage scrub, chaparral, sandy washes, lowlands, river floodplains, alluvial fans, playas, alkali flats, foothills, and mountains. Vernal or seasonal pools, that hold water for a minimum of three weeks, are necessary for breeding.	**Absent**. The Project site and surrounding areas consisted of densely vegetated ruderal habitat and non-native grassland, surrounding agricultural activity, and the absence of seasonal pools required for this species.

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

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

STATUS CODES

FE	Federally Endangered	CE	California Endangered
FT	Federally Threatened	CCE	California Endangered (Candidate)
FC	Federal Candidate	CT	California Threatened
FPT	Federally Threatened (Proposed)	CFP	California Fully Protected
		CSSC	California Species of Special Concern

CALIFORNIA NATIVE PLANT SOCIETY (CNPS) LISTING

1B	Plants rare, threatened, or endangered in California and elsewhere.	2B	Plants rare, threatened, or endangered in California, but more common elsewhere.

4.4.2 IMPACT ANALYSIS

a) Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Less than Significant Impact. Of the 16 regionally occurring special status plant species, all 16 are considered absent from or unlikely to occur within the Project site due to past or ongoing disturbance and/or the absence of suitable habitat. Since it is unlikely that these species would occur onsite, implementation of the proposed Project should have no impact on all 16 special status species through construction mortality, disturbance, or loss of habitat.

Of the 19 regionally occurring special status animal species, all 19 are considered absent from or unlikely to occur within the Project site due to past or ongoing disturbance and/or the absence of suitable habitat. These species include American badger, Bakersfield legless lizard, blunt-nosed leopard lizard, Buena Vista Lake ornate shrew, burrowing owl, coast horned lizard, Conservancy fairy shrimp, Crotch bumble bee, loggerhead shrike, Northern California legless lizard, Northwestern pond turtle, San Joaquin coachwhip, San Joaquin kit fox, Swainson's hawk, Tipton kangaroo rat, tricolored blackbird, Tulare grasshopper mouse, vernal pool fairy shrimp, and western spadefoot. Since it is unlikely that these species would occur onsite, implementation of the proposed Project should have no impact on these 19 special status species through construction mortality, disturbance, or loss of habitat.

A list of special status animal and plant species with the potential to occur onsite and/or in the vicinity can be found in Appendix B. The Biological Evaluation (Appendix B) discusses these special status animal and plant species and their occurrences in detail in or near the Project site. The site and adjacent areas contain suitable nesting and foraging habitat for a variety of protected bird species, such as migratory birds and raptors. It is anticipated that during the nesting bird season, protected birds could nest on the ground or in shrubs and trees within, and adjacent to, the site and forage within the site. Protected birds located within or adjacent to the site during construction have the potential to be injured or killed by Project-related activities. In addition to the direct "take" of protected birds within the site and adjacent areas, these birds nesting in these areas could be disturbed by Project-related activities resulting in nest abandonment. Mitigation measures outlined below in Section 4.4.3 would ensure impacts to these species are reduced to less than significant.

b) Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Less than Significant Impact. Riparian habitat is absent from the Project site and adjacent lands. There are no CNDDB-designated "natural communities of special concern" recorded within the Project site or surrounding lands. Impacts would be less than significant.

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

Less than Significant Impact. Typical wetlands, vernal pools, and other waters were absent from the Project site. There are no designated wild and scenic rivers within the Project site; therefore, the proposed Project would not result in direct impacts to wild and scenic rivers. Since construction would involve ground disturbance over an area greater than one acre, the proposed Project would also be required to obtain a Construction Stormwater General Permit under the Storm Water Program administered by the Regional Water Quality Control Board. A prerequisite for this permit is the development of a Storm Water Pollution Prevention Plan (SWPPP) so activities do not adversely affect water quality. Impacts would be less than significant.

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

No impact. Most of the Project site does not contain features that would be likely to function as wildlife movement corridors. Casa Blanca Ditch could be potentially used as a wildlife movement corridor, but disturbance to this existing canal would be temporary in nature and would not disturb wildlife movement. Furthermore, the proposed Project is located in an area regularly disturbed by humans which would discourage dispersal and migration. Native wildlife nursery sites are areas where a species or group of similar species raise their young in a concentrated place, such as maternity bat roosts. No native wildlife nursery sites were found within the site. Therefore, the proposed Project would have no impact on wildlife movement corridors or other 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?

e) and f) Less than Significant Impact. Designated critical habitat is absent from the Project site and surrounding lands. Therefore, there would be no impact to critical habitat. The proposed Project appears to be consistent with the goals and policies of the Tulare County General Plan. There are no known Habitat Conservation Plans or Natural Community Conservation Plans in the Project vicinity. Impacts would be less than significant.

4.4.3 MITIGATION

BIO-1 (Best Management Practices): The proposed Project proponent will require that all workers employ the following best management practices (BMPs) in order to avoid and minimize potential impacts to special status species:

- Vehicles will observe a 15-mph speed limit while on unpaved access routes.
- All open trenches, holes, sumps, and other excavations greater than six inches with sidewalks steeper than a 1;1 (45-degree) slope will have an escape ramp of earth or a non-slip material with a less than 1:1 slope or these will be covered with barrier material such that animals are unable to dig or squeeze under the barrier and become entrapped.
- Workers will inspect areas beneath parked vehicles, equipment, and materials prior to mobilization. If special status species are detected, the individual will either be allowed to leave of its own volition or will be captured by the qualified biologist (must possess appropriate collecting/handling permits) and relocated out of harm's way to the nearest suitable habitat beyond the influence of the Project work area. "Take" of a State or federal special status (rare, California Species of Special Concern, threatened, or endangered) species is prohibited without the necessary federal or State take permit(s).

BIO-2 (Avoidance): The proposed Project's construction activities will occur, if feasible, between September 1 and January 31 (outside of the nesting bird season) to avoid impacts to nesting birds.

BIO-3 (Pre-construction Surveys): If activities must occur within the nesting bird season (February 1 to August 31), a qualified biologist (someone able to identify these species) will conduct a pre-construction survey for active nests within seven (7) calendar days prior to the start of construction. It will be completed within the Project site, and up to 50 feet outside of the Project site for nesting migratory birds and up to 450 feet outside of the Project site for nesting raptors. Raptor nests are considered "active" upon the nest-building stage. If no active nests are observed, no further mitigation is required.

BIO-4 (Avoidance Buffers): On discovery of any active nests or breeding colonies near work areas, a qualified biologist will determine appropriate avoidance buffer distances based on applicable CDFW and/or USFWS guidelines, the biology of the species, conditions of the nest(s), and the level of proposed Project disturbance.

4.5 CULTURAL RESOURCES

Table 4-12: Cultural Resources Impacts

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

4.5.1 BASELINE CONDITIONS

The San Joaquin Valley region has received minimal archaeological attention compared to other areas of the State. In part, this is because the majority of California archaeological work has been concentrated in the Sacramento Delta, Santa Barbara Channel, and central Mojave Desert areas. Although knowledge of the region's prehistory is limited, enough is known to determine that the archaeological record is broadly similar to south-central California as a whole. Based on these sources, the general prehistory of the region can be outlined as follows.

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

4.5.1.1 PEDESTRIAN SURVEY

On April 5, 2025, Taylored Archaeology conducted a pedestrian survey of the entire Project site consisting of approximately 41.7-acres. All exposed ground surface was examined for artifacts (prehistoric and historical resources) that may be more than 50 years old and may be present on the ground surface. During the survey, ground visibility varied depending on the amount of vegetation and agricultural disturbance. Visibility ranged from poor to fair (30 to 60 percent) within areas containing mostly dense nonnative vegetation dominated by prickly lettuce and scattered wood chips. Ground visibility was good to excellent (80 to 100 percent) in areas by the canal. Soil on the site consisted of a grayish-brown loam. During the survey, a segment of the Casa Blanca Canal (P-54-005026) was encountered on the south end of the Project site in an active and well-maintained condition. The canal segment is owned and operated by LTRID.

4.5.1.2 RECORDS SEARCH

A records search from the Southern San Joaquin Valley Information Center (SSJVIC) of the California Historical Resources Information System (CHRIS), located at California State University, Bakersfield was conducted on March 19, 2025. The records search includes a review of all recorded archaeological and built-environment resources as well as a review of cultural resource reports on file. In addition, the California Points of Historical Interest, the California Historical Landmarks, the California Register of Historical Resources, the National Register of Historic Places, and the California State Built Environment Resources Directory listings were reviewed for the APE and an additional one-half mile radius. The search confirmed there has been one previous cultural resource identified within the Project area, and there has been one previous cultural resource studies conducted within the Project area. There were no other cultural resource studies or cultural resources listed within a half-mile radius of the Project area.

4.5.2 IMPACT ANALYSIS

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

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

a) and b) Less than Significant Impact with Mitigation Incorporated. A CHRIS records search, from the SSJVIC, was conducted in March 2025. The search confirmed there has been one previous cultural resource identified within the Project area, and there has been one previous cultural resource studies conducted within the Project area. The cultural resource identified was one historic-era linear structure, the Casa Blanca Canal (P-54-005026), which is a part of the proposed Project. There were no other cultural resource studies or cultural resources listed within a half-mile radius of the Project area.

Because the proposed Project construction would connect to the canal, Taylored Archaeology prepared a DPR record form documenting the presence of the canal segment within the Project boundary but did not prepare a National Register of Historic Places (NRHP) or California Register of Historical Resources (CRHR) eligibility evaluation for the canal segment as part of this study (see Appendix C). The Casa Blanca Canal was already recorded in 2006 and 2016 by other archaeology companies and was evaluated for NRHP and CRHR eligibility in 2013 by the U.S. Bureau of Reclamation. The United States. Bureau of Reclamation found the canal ineligible for inclusion in both the NRHP and CRHR. No prehistoric cultural resources were encountered during the pedestrian survey.

It is unlikely that the proposed Project has the potential to result in significant impacts or adverse effects to cultural or historical resources, such as archaeological remains, artifacts, or historic properties. However, in the event that cultural resources are encountered during Project construction, implementation of mitigation measure **CUL-1** outlined below would reduce impacts to less than significant.

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

Less than Significant Impact with Mitigation Incorporated. There is no evidence or record that the proposed Project has the potential to be an unknown burial site, or the site of buried human remains. In the unlikely event of such a discovery, mitigation shall be implemented. With incorporation of mitigation measure **CUL-2** outlined below, impacts resulting from the discovery of remains interred on the Project site would be less than significant.

4.5.3 MITIGATION

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

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

4.6 ENERGY

Table 4-13: Energy Impacts

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

4.6.1 BASELINE CONDITIONS

The Project site is situated south of the community of Poplar, a rural residential and agricultural area in Tulare County. Southern California Edison (SCE) supplies electricity to the Project area.[10] Southern California Gas Company supplies natural gas to the Project area.[11]

4.6.2 IMPACT ANALYSIS

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

Less than Significant Impact. Fuel consumed by construction equipment would be the primary energy resource expended over the course of Project construction. California Code of Regulations Title 13, Motor Vehicles, Section 2449(d)(2), Idling, limits idling times of construction vehicles to no more than five minutes, thereby precluding unnecessary and wasteful consumption of fuel because of unproductive idling of construction equipment. In addition, the energy consumption for construction activities would not be ongoing as they would be limited to the duration of Project construction.

Energy consumption of non-residential uses is currently governed by the 2022 California Building Code, Part 6 for structures, and Title 20 of the California Code of Regulations for appliances. Energy consumption is anticipated to decrease over time as more energy efficient standards take effect and energy-consuming equipment reaches its end-of-life and necessitates replacement. The proposed Project would comply with construction best management practices. Once completed, the proposed Project would be passive in nature and would not operate in a wasteful or inefficient manner that results in unnecessary consumption of energy resources. Therefore, impacts would be less than significant.

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

No Impact. State and local authorities regulate energy use and consumption. These regulations at the State level are intended to reduce energy use and Greenhouse Gas (GHG) emissions. These include, among others, Assembly Bill (AB) 1493 – Light-Duty Vehicle Standards; California Code of Regulations Title 24, Part 6 – Energy Efficiency Standards; and California Code of Regulations Title 24, Parts 6 and 11

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[10] (Southern California Edison, 2025)

[11] (Southern California Gas Company, 2023)

– California Energy Code and Green Building Standards. The proposed Project would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency. Therefore, there would be no impact.

4.7 GEOLOGY AND SOILS

Table 4-14: Geology and Soils Impacts

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
ii. Strong seismic ground shaking?	☐	☐	☒	☐
iii. Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv. Landslides?	☐	☐	☐	☒
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994) creating substantial direct or indirect risks to life or property?	☐	☐	☒	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒
f) Directly or indirectly destroy a unique paleontological resource or site or unique geological feature?	☐	☐	☒	☐

4.7.1 BASELINE CONDITIONS

4.7.1.1 GEOLOGY AND SOILS

The Project site is located in Tulare County, in the southern section of California's Great Valley Geomorphic Province, or Central Valley. The Sacramento Valley makes up the northern third and the San Joaquin Valley makes up the southern two-thirds of the geomorphic province. Both valleys are watered by large rivers flowing west from the Sierra Nevada Range, with smaller tributaries flowing east from the Coast Ranges. Most of the surface of the Great Valley is covered by Quaternary (present day to 1.6 million years ago) alluvium. The sedimentary formations are steeply upturned along the western margin due to the uplifted Sierra Nevada Range.[12] From the time the Central Valley first began to form, sediments derived from

[12] Harden, D.R. 1998, California Geology, Prentice Hall, 479 pages.

erosion of igneous and metamorphic rocks and consolidated marine sediments in the surrounding mountains have been transported into the Central Valley by streams.

According to the United States Department of Agriculture Natural Resources Conservation Service (NRCS) soil survey of Tulare County, the Project site soils are almost entirely comprised of Flamen loam with a small portion of the site consisting of Exeter loam along the eastern margin.[13] The soils present and their characteristics at the basin location can be found in Appendix B.

4.7.1.2 FAULTS AND SEISMICITY

The Project site is not located in an Alquist-Priolo Earthquake Fault Zone, and no known faults cut through the local soil at the site. There are no known active faults in Tulare County.[14] The closest known fault is an unnamed fault 6.5 miles southeast of the site, while the San Andreas Fault is approximately 62 miles southwest of the proposed Project.

4.7.1.3 LIQUEFACTION

The potential for liquefaction, which is the loss of soil strength due to seismic forces, is dependent on soil types and density, the groundwater table, and the duration and intensity of ground shaking. No specific liquefaction hazard areas have been identified in the County.[15]

4.7.1.4 SOIL SUBSIDENCE

There are two types of subsidence: land subsidence and hydrocompaction subsidence. Hydrocompaction subsidence occurs when a large land area settles due to over-saturation. These areas are typically composed of open-textured soils that become saturated, high in silt or clay content. Land subsidence occurs when an extensive amount of ground water, oil, or natural gas is withdrawn from below the ground surface. The San Joaquin Valley has become an area that has increasingly experienced subsidence due to excessive groundwater pumping activities lowering the water table.

4.7.1.5 DAM AND LEVEE FAILURE

According to the Federal Emergency Management Agency (FEMA), the closest 100-year flood zone is approximately two miles southeast of the Project site.[16] The Project site is within the Success dam inundation zone.[17]

4.7.2 IMPACT ANALYSIS

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

i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

ii. Strong seismic ground shaking?

a-i) and a-ii) Less than Significant Impact. The Project site and the broader area are in an area traditionally characterized by relatively low seismic activity. Ground shaking intensity is largely a function of distance

[13] (United States Department of Agriculture)
[14] (Tulare County 2030 General Plan Update, 2010)
[15] (Department of Conservation, 2025)
[16] (Federal Emergency Management Agency, 2025)
[17] (California Department of Water Resources, 2015)

from the earthquake epicenter and underlying geology. The most common impact associated with strong ground shaking is damage to structures, and no habitable structures are associated with the proposed Project. The site is not located in an Alquist-Priolo Earthquake Fault Zone as established by the Alquist-Priolo Fault Zoning Act (Section 2622 of Chapter 7.5, Division 2 of the California Public Resource Code). No known faults cut through the local soil at the site. There are no known active faults in Tulare County.[18] The closest known fault is an unnamed fault 6.5 miles southeast of the site, while the San Andrea Fault is approximately 62 miles southwest of the proposed Project. Due to the geology of the Project area and its distance from active faults, the potential for loss of life, property damage, ground settlement, or liquefaction to occur in the Project area is considered minimal. Impacts would be less than significant.

iii. Seismic-related ground failure, including liquefaction?

Less than Significant Impact. Liquefaction occurs when loose, water-saturated sediments lose strength and fail during strong ground shaking. In general, liquefiable areas are confined to the Central Valley floor covered by Quaternary-age alluvial deposits, Holocene soil deposits, current river channels, and active wash deposits and their historic floodplains, marshes, and dry lakes. Specific liquefaction hazard areas in the County have not been identified. Additionally, the proposed Project would be in compliance with the relevant land use plans and the goals and policies set forth in the Tulare County General Plan that would avoid or reduce the effects of these hazards. As such, this impact would be less than significant.

iv. Landslides?

No Impact. The proposed Project is located in a relatively flat area with little to no potential for landslides to occur. Construction of the proposed Project would not increase the likelihood for landslides to occur at the Project site. Therefore, there would be no impact.

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

Less than Significant Impact. Earthmoving activities associated with the proposed Project would include excavation, trenching, and infrastructure and embankment construction. These activities could expose soils to erosion processes and the extent of erosion would vary depending on slope steepness/stability, vegetation/cover, concentration of runoff, and weather conditions. Dischargers whose projects disturb one (1) or more acres of soil are required to obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity Construction General Permit Order 2009-0009-DWQ. Construction activity subject to this permit includes clearing, grading, and disturbances to the ground such as stockpiling, or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility. The Construction General Permit requires the development of SWPPP by a qualified sediment practitioner or a qualified sediment developer. Since the Project site has a relatively flat terrain with a low potential for soil erosion and would comply with the SWRCB requirements, impacts would be less than significant.

c) Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

Less than Significant Impact. The Project site and the immediate surrounding area do not have any substantial grade changes in the topography to the point where the Project components would expose people or structures to potential substantial adverse effects on, or offsite, such as landslides, lateral spreading, or collapse. Earthquake-induced ground failures, such as ruptures, lateral spreading, ground

[18] (Tulare County 2030 General Plan Update, 2010)

lurching, seiches, or landslides, are unlikely to occur on the Project site because of its relatively stable geologic formation and lack of active faults. Any impacts would be less than significant.

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

Less than Significant Impact. Expansive soils are characterized by their potential "shrink-swell" behavior. Shrink-swell is the cyclic change in volume (expansion and contraction) that occurs in certain fine-grained clay sediments from the process of wetting and drying. Clay minerals such as smectite, bentonite, montmorillonite, beidellite, vermiculite, and others are known to expand with changes in moisture content. The higher the percentage of expansive minerals present in near surface soils, the higher the potential for significant expansion. Structural damage may result over a long period of time due to the placement of structures directly on expansive soils. According to the NRCS soil survey, the Project site soils consist of Flamen loam and Exeter loam – however, Flamen loam makes up the overwhelming majority (99%) of the site. Flamen loam is a soil type considered to have a moderate "shrink-swell" potential. However, the proposed Project does not involve the construction of any habitable structures or require the presence of permanent on-site staff and would therefore not create substantial direct or indirect risks to life or property. Therefore, impacts would be less than significant.

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

No Impact. Septic installation or alternative wastewater disposal systems are not proposed or necessary for the proposed Project. Therefore, there would be no impact.

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

No Impact. There are no known unique geological features on the Project site, and no unique paleontological resources have been identified. There would be no impact.

4.8 GREENHOUSE GAS EMISSIONS

Table 4-15: Greenhouse Gas Emissions Impacts

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

4.8.1 BASELINE CONDITIONS

Commonly identified GHG emissions and sources include the following:

Carbon dioxide (CO_2) is an odorless, colorless natural greenhouse gas. CO_2 is emitted from natural and anthropogenic sources. Natural sources include the following: decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; evaporation from oceans; and volcanic out gassing. Anthropogenic sources include the burning of coal, oil, natural gas, and wood.

Methane (CH_4) is a flammable greenhouse gas. A natural source of methane is the anaerobic decay of organic matter. Geological deposits, known as natural gas fields, also contain methane, which is extracted for fuel. Other sources are from landfills, fermentation of manure, and ruminants such as cattle.

Nitrous oxide (N_2O), also known as laughing gas, is a colorless greenhouse gas. Nitrous oxide is produced by microbial processes in soil and water, including those reactions that occur in fertilizer containing nitrogen. In addition to agricultural sources, some industrial processes (fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions) also contribute to its atmospheric load.

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

Ozone (O_3) is known as a photochemical pollutant and is a greenhouse gas; however, unlike other greenhouse gases, ozone in the troposphere is relatively short-lived and, therefore, is not global in nature. O_3 is not emitted directly into the atmosphere but is formed by a complex series of chemical reactions between volatile organic compounds, nitrogen oxides, and sunlight.

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

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

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

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

Sulfur hexafluoride (SF_6) is an inorganic, odorless, colorless, nontoxic, nonflammable gas. It has the highest global warming potential of any gas evaluated. Sulfur hexafluoride is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.

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

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

4.8.2 IMPACT ANALYSIS

4.8.2.1 PROJECT RELATED EMISSIONS

Construction of the proposed Project is assumed to be completed over the course of approximately four to six months, starting in the fall of 2025. Emissions associated with the proposed Project were calculated using CalEEMod Air Quality Model, Version 2022.1.1.29. The emissions modeling includes emissions generated by off-road equipment, haul trucks, and worker commute trips. All other assumptions are based upon the default parameters contained in the model. Localized air quality impacts associated with the proposed Project would be minor and were qualitatively assessed. Modeling assumptions and output files are included in Appendix A.

Estimated construction-generated emissions are summarized in Table 4-16. GHGs impact the environment over time as they increase and contribute to climate change.

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

Table 4-16: Short Term Construction Related GHG Emissions

	Emissions (MT CO2e) in TPY
Maximum Annual Construction CO_2e Emissions	268
AB 32 Consistency Threshold for Land-Use Development Projects*	1,100
AB 32 Consistency Threshold for Stationary Source Projects*	10,000
Threshold Exceeded?	No

Construction related generation of GHGs would be a maximum of 268 metric tons of carbon dioxide equivalent ($MTCO_2e$) per year, while operational are expected to be negligible due to the passive nature of the proposed use. The proposed Project would not exceed the AB 32 consistency threshold for land use projects for both short-term construction emissions and long-term operational emissions as a result.

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

Less than Significant Impact. The Project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment. As shown in Table 4-16, the proposed Project is not expected to result in the generation of GHG emissions that would exceed the AB 32 consistency threshold of 1,100 $MTCO_2e$ annually during construction activities. Due to the passive nature of the proposed Project, it is expected to result in the generation of negligible quantities of emissions during operational activities. Therefore, impacts would be less than significant.

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

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

4.9 HAZARDS AND HAZARDOUS MATERIALS

Table 4-17: Hazards and Hazardous Materials Impacts

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

4.9.1 BASELINE CONDITIONS

4.9.1.1 HAZARDOUS MATERIALS

The Hazardous Waste and Substances Sites (Cortese) List is a planning document used by the State, local agencies, and developers to comply with CEQA requirements in providing information about the location of hazardous materials release sites. Government Code Section 65962.5 requires the California Environmental Protection Agency to develop at least annually an updated Cortese List. The Department of Toxic Substances Control (DTSC) is responsible for a portion of the information contained in the Cortese List. Other State and local government agencies are required to provide additional hazardous material release information for the Cortese List. DTSC's EnviroStor database provides DTSC's component of Cortese List data (DTSC, 2010). In addition to the EnviroStor database, the SWRCB GeoTracker database provides information on regulated hazardous waste facilities in California, including underground storage tank cases and non- underground storage tank cleanup programs, including Spills-Leaks-Investigations-Cleanups sites, Department of Defense sites, and Land Disposal program. A search of the DTSC EnviroStor database and the SWRCB GeoTracker performed on March 26, 2025, determined that there are no known active hazardous waste generators or hazardous material spill sites within the Project site.[20] [21]

4.9.1.2 AIRPORTS

The nearest airport to the Project site is the Porterville Municipal Airport, which is located approximately 3.5 miles east of the proposed Project.

4.9.1.3 EMERGENCY RESPONSE PLAN

Tulare County Environmental Health Division (TCEHD) is the local agency responsible for the implementation of the state-mandated Unified Hazardous Waste and Hazardous Materials Management Regulatory Program.[22] Tulare County has prepared a Hazardous Materials Business Plan and a Multi-Jurisdictional Local Hazard Mitigation Plan which serves as the County's emergency response plan for hazardous materials emergency incidents. TCEHD provides three permanent Household Hazardous Waste drop-off facilities in the County and operates mobile collection events throughout the year.

4.9.1.4 SENSITIVE RECEPTORS

Potential sensitive receptors, such as a few residences, are located in the area around the proposed Project. The closest school is the Pleasant View West Elementary School, situated approximately 1.25 miles northwest of the Project site.

4.9.2 IMPACT ANALYSIS

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

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

a) and b) Less than Significant Impact. There would be no transport, use, or disposal of hazardous materials associated with Project construction or operations, with the exception of diesel fuel for construction or routine maintenance equipment. Any potential accidental hazardous materials spills during Project construction or basin maintenance are the responsibility of the contractor to remediate in accordance with industry best management practices (BMPs) as well as State and County regulations. As such, any impacts would be less than significant.

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

No Impact. The Project site is not located within one-quarter mile of an existing or proposed school. Pleasant View West Elementary School is the nearest school and is located approximately 1.25 miles northwest of the proposed Project. Additionally, there would be no transport, use, or disposal of hazardous materials associated with Project construction or operations, with the exception of diesel fuel for construction or routine maintenance equipment. Therefore, the proposed Project would not emit hazardous emissions or involve the transport or handling of any hazardous materials within one-quarter mile of a school. There would be no impact.

[20] (California Department of Toxic Substances Control, 2025)
[21] (California State Water Resources Control Board, 2025)
[22] Invalid source specified.

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

Less than Significant Impact. The proposed Project does not involve land that is listed as an active hazardous materials site pursuant to Government Code Section 65962.5 and is not included on a list compiled by DTSC. Both the SWQCB's GeoTracker and DTSC's EnviroStor websites were queried on March 26, 2025, for contaminated groundwater or sites in the area. Moreover, there are no sites within one mile of the proposed Project. Any impacts would be less than significant.

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?

Less than Significant Impact. The Porterville Municipal Airport, the nearest public airport to the Project site, is located approximately 3.5 miles east of the proposed Project. The Project site does not conflict with an airport land use plan. Therefore, there would be no impact.

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

Less than Significant Impact. The construction of the proposed Project would not impair or physically interfere with any adopted emergency response or emergency evacuation plan. Minimal traffic would be added temporarily during construction. After construction is completed, no roadways or emergency response and/or evacuation paths would be impeded. As such, impacts would be less than significant.

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

No Impact. As discussed in further detail in the Section 4.20, the proposed Project would not expose people or structures either directly or indirectly to a significant loss, injury, or death involving wildland fires. The Project site abuts residences to its west but is primarily in an agriculturally developed area of the County that is not considered susceptible to wildfire. Therefore, there would be no impact.

4.10 HYDROLOGY AND WATER QUALITY

Table 4-18: Hydrology and Water Quality Impacts

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

4.10.1 BASELINE CONDITIONS

The proposed Project is located in Tulare County, in the Central San Joaquin Valley. Like most of California, the San Joaquin Valley experiences a Mediterranean climate. Warm, dry summers are followed by 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. The Central Valley receives an average of 12 inches of precipitation in the form of rainfall yearly, most of which occurs between October and March.

The Project site is located within the Lower Deer Creek watershed, Hydrologic Unit Code 1803000509. The proposed Project lies entirely within the Tule Groundwater Subbasin of the San Joaquin Valley Groundwater

Basin.[23] FEMA Flood Insurance Rate Map Panel No. 06107C1620E (effective 6/16/2009) indicates that the Project site is located out of the 100 Year Flood Zone with minimal flooding risk (see Figure 4-1).[24]

4.10.2 IMPACT ANALYSIS

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

Less than Significant Impact. The SWRCB requires a SWPPP be prepared for projects that disturb one (1) or more acres of soil. A SWPPP involves site planning and scheduling, limiting disturbed soil areas, and determining BMPs to minimize the risk of pollution and sediments being discharged from construction sites. Implementation of the SWPPP would minimize the potential for the proposed Project to substantially alter the existing drainage pattern in a manner that would result in substantial erosion or siltation onsite or offsite. Additionally, there would be no discharge to any surface source. Use of chemicals or surfactants would not be generated through the maintenance or operation of the proposed Project and as such, there would be no discharge directly associated with Project implementation that could impact water quality standards. The proposed Project would not violate any water quality standards and would not impact waste discharge requirements. The impact would be less than significant.

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

Less than Significant Impact. The proposed Project entails the construction of a basin to improve groundwater supplies through recharge. No additional groundwater would be required compared to baseline conditions; therefore, the impacts would be less than significant.

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

i. result in substantial erosion or siltation on- or off-site;

Less than Significant Impact. The proposed Project would not alter the course of the flow of a stream or river in which substantial erosion or siltation could occur. In addition, the proposed Project would not result in an increase in the amount of surface runoff because the scope of this proposed Project does not include the conversion of any permeable surface into impermeable surfaces. Moreover, in order to minimize the possibility of substantial soil erosion or siltation, the proposed Project would use construction BMP's and complete a SWPPP. SWPPP's include mandated soil erosion control measures, which are developed to prevent significant impacts related to erosion caused by runoff during construction. Therefore, impacts would be less than significant.

ii. substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;

No Impact. The proposed Project would improve groundwater storage by reducing groundwater pumping in the area and prevent exceedances of storm water drainage systems or additional polluted runoff by

[23] (California Department of Water Resources, 2018)
[24] (Federal Emergency Management Agency, 2025)

providing a depressional space for surface water capture. As such, the proposed Project would not result in a substantial increase in the rate or amount of surface runoff that would result in flooding on- or off-site. Therefore, there would be no impact.

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

No Impact. The proposed Project would improve groundwater storage by reducing pumping in the area and prevent exceedances of storm water drainage systems or additional polluted runoff by providing a depressional space for surface water. There would be no impact.

iv. impede or redirect flood flows?

No Impact. The proposed Project would not impede or redirect flood flows. The proposed Project is designed to capture and temporarily store storm and flood flows and allow the water to infiltrate into the ground over a period of time, thereby facilitating recharge of the underlying aquifer. There would be no impact.

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

Less than Significant Impact. The proposed Project is not located in a flood hazard, tsunami, or seiche zone. The proposed Project is in the central San Joaquin Valley, especially isolated from opportunities for tsunami or seiche. There is a very low probability of dam failure inundation; however, the proposed Project is within the Success dam inundation area. There would be no employees required to be on site on a regular basis at the basin. As shown in Figure 4-2, the proposed Project is not within a 100-year flood zone. Additionally, operation of the basin facilities does not involve hazardous materials, which could lead to the release of pollutants. Impacts would be less than significant.

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

No Impact. The proposed Project would not conflict with implementation of a water quality control plan. The proposed Project would help alleviate water supply issues during the irrigation season and capture portions of available storm or flood runoff to be used for groundwater recharge. Furthermore, construction activities would require implementation of a SWPPP and compliance with all Cal/OSHA regulations in order to reduce the potential for incidental release of pollutants or hazardous substances into surface water or groundwater. The proposed Project would be located within the boundaries of the Lower Tule Groundwater Sustainability Agency (LTGSA), of which the District is also serving as the Groundwater Sustainability Agency (GSA). The proposed Project would not conflict with the LTGSA. There would be no impacts.

4.10.3 FEDERAL CROSS-CUTTING TOPIC

4.10.3.1 FLOOD PLAIN MANAGEMENT – EXECUTIVE ORDER NUMBERS 11988, 12148, AND 13690

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

4.10.3.2 RIVERS AND HARBORS ACT

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

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

4.10.3.3 SAFE DRINKING WATER ACT, SOLE SOURCE AQUIFER PROTECTION

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

SSA designation protects an area's groundwater resources by requiring USEPA to review all proposed projects within the designated area that will receive federal financial assistance. The SSA Program states that if USEPA determines an area to have an aquifer which is the sole or principal drinking water source for the area, that if contaminated would create a significant hazard to public health, a notice of that determination needs to be published in the Federal Register. After publication of any such notice, no commitment for federal financial aid may be applied for any project that the Administrator determines may contaminate the aquifer through a recharge zone, so as to create a significant hazard to public health.[25]

Pursuant to Section 1424(e), the USEPA has designated six (6) aquifers in Region IX which are the sole or principal source of drinking water for all municipal and private water systems in that watershed, and that if contaminated, would create a significant hazard to public health.

The proposed Project is not located in an SSA.

[25] (United States Environmental Protection Agency, 2024)

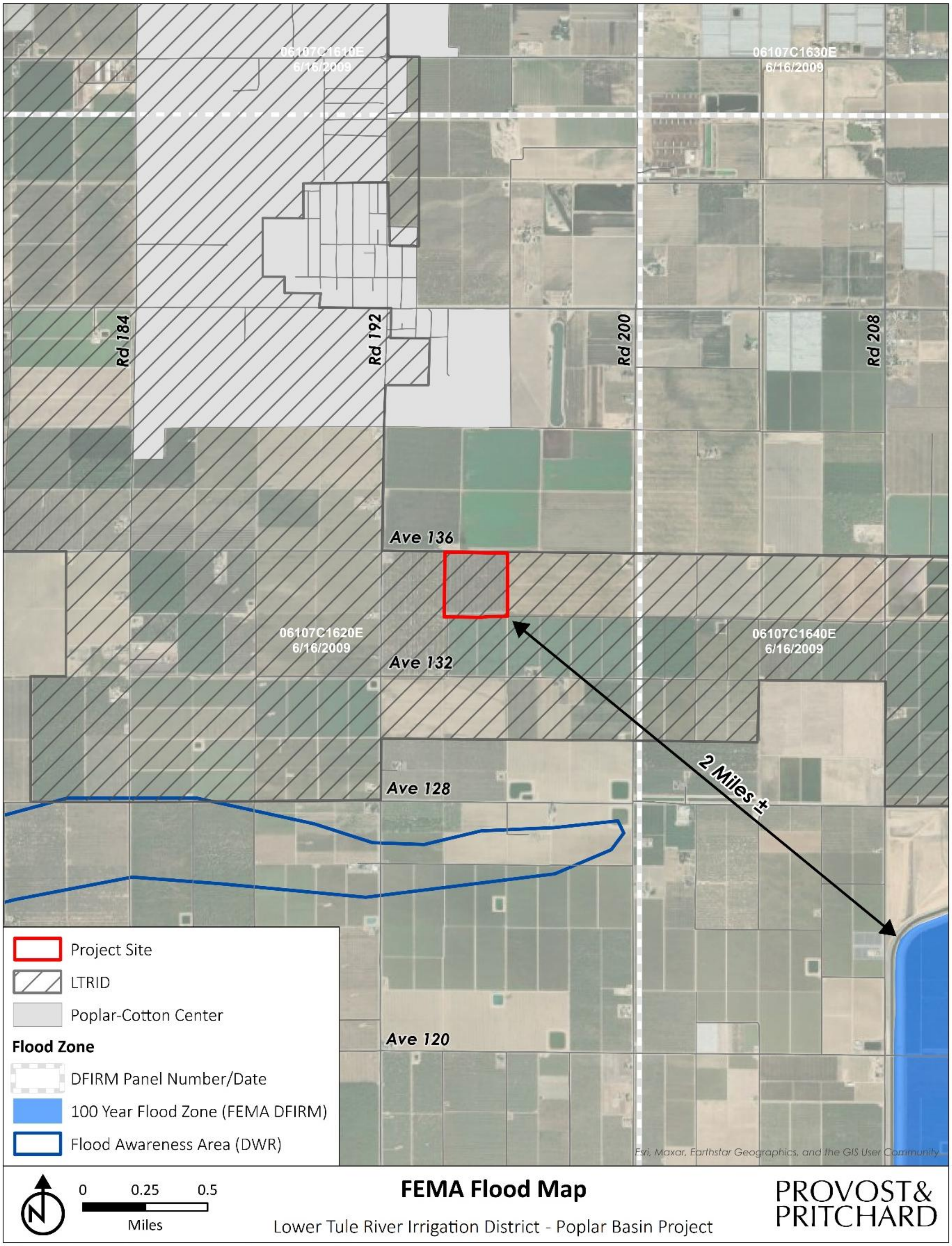

Figure 4-2: FEMA Flood Map

4.11 LAND USE AND PLANNING

Table 4-19: Land Use and Planning Impacts

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Physically divide an established community?	☐	☐	☐	☒
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒

4.11.1 BASELINE CONDITIONS

The proposed Project is situated south of the community of Poplar in rural, unincorporated Tulare County. The area is dominated by lands in agricultural production. The Project site contains approximately 41.7 acres total of farmland. Lands involving the Project site are zoned Agriculture Rural – AE20. The site is planned for Valley Agriculture – Rural Valley Lands.

4.11.2 IMPACT ANALYSIS

a) Would the project physically divide an established community?

No Impact. The Project site is located in an agricultural area south of the community of Poplar in Tulare County. Surrounding land uses are agricultural; the proposed Project would not physically divide any established communities. There would be no impact.

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

No Impact. The Project site is zoned Agriculture Rural – AE20 and has a land use designation of Valley Agriculture – Rural Valley Lands. The proposed Project involves the construction and operation of an approximately 41.7-acre basin, which is consistent with the land uses within the vicinity. The proposed Project would convert the area into a recharge basin that would support agriculture through improved water supply reliability. In addition, Government Code Section 53091 (e) excludes the application of a city or county's zoning ordinances from applying to water projects that construct facilities for the production, generation, storage, treatment, or transmission of water. The proposed Project would not conflict with any land use plan, policy, or regulation adopted. There would be no impact.

4.11.3 FEDERAL CROSS-CUTTING TOPIC

4.11.3.1 COASTAL ZONE MANAGEMENT ACT

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

4.12 MINERAL RESOURCES

Table 4-20: Mineral Resources Impacts

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☒	☐
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☒	☐

4.12.1 BASELINE CONDITIONS

According to the DOC's Mines Online map, there are sand, gravel, and decomposed granite resources throughout the County. There are no mineral resource locations located on the Project site.[26]

4.12.1.1 MINERAL RESOURCES ZONES

The California DOC, Division of Mines and Geology classifies Mineral Resource Zones in order to map areas throughout the state that contain regionally significant mineral resources. Mineral Resource Zones (MRZ) are defined as follows:

- MRZ-1 is classified as an area where adequate information indicates there are no significant mineral deposits present, or where there is little likelihood for mineral deposit presence.
- MRZ-2 is classified as an area with adequate information indicating significant mineral deposits are present and or a high likelihood for mineral deposit presence.
- MRZ-3 is classified as an area of undetermined mineral resource significance based on available data which may suggest or infer mineral occurrences.
- MRZ-4 is classified as an area of unknown mineral resource significance or no known mineral occurrence.

According to the California DOC's Mineral Land Classification map, the Project site is located in an MRZ-2 zone.

4.12.2 IMPACT ANALYSIS

a) Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

b) Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

a) and b) Less than Significant Impact. The California Geological Survey Division of Mines and Geology has classified the Project site as MRZ-2 under the Surface Mining and Reclamation Act indicating significant mineral deposits are present and or a high likelihood for mineral deposit presence. However, no known mineral resources are within the Project site. According to the California Department of Conservation's

[26] (California Department of Conservation, 2016)

Mines Online mapping tool, there are no mines with the District boundary. Additionally, California's Division of Oil, Gas and Geothermal Resources has no records of closed or active oil or gas wells on the proposed Project site.[27] Therefore, construction of the proposed Project would not result in the loss of availability of a known mineral resource. As such, impacts would be less than significant.

[27] (California Department of Conservation Well Finder, 2020)

4.13 NOISE

Table 4-21: Noise Impacts

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

4.13.1 BASELINE CONDITIONS

The Project site is located in Tulare County in an area characterized by agriculture, vacant lands, and sparse residences. The community of Poplar sits more than a mile to the north. Due to the seasonal nature of the agricultural industry, there are often extended periods of time when little noise is generated around the Project site, followed by short-term periods of intensive mechanical equipment usage and corresponding noise generation. The Tulare County General Plan sets forth the following goals and policies regarding noise and which have potential relevance to the Project's CEQA review:

- The County shall limit noise generating activities, such as construction, to hours of normal business operation (7 a.m. to 7 p.m.). No peak noise generating activities shall be allowed to occur outside of normal business hours without County approval.
- The County shall seek to limit the potential noise impacts of construction activities by limiting construction activities to the hours of 7 am to 7pm, Monday through Saturday when construction activities are located near sensitive receptors. No construction shall occur on Sundays or national holidays without a permit from the County to minimize noise impacts associated with development near sensitive receptors.

The County shall ensure that construction contractors implement best practices guidelines (i.e. berms, screens, etc.) as appropriate and feasible to reduce construction-related noise-impacts on surrounding land uses.

4.13.2 IMPACT ANALYSIS

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

Less than Significant Impact. Construction of the proposed Project would involve temporary noise sources, predominately from off-road equipment, such as excavators, backhoe/loader, scraper, dozer, concrete truck, and concrete pumper. The Project site is located adjacent to agricultural lands, accustomed to noises associated with farm equipment. The proposed Project would comply with the County's Noise Ordinance as put forth in the County's General Plan.[28] Operational maintenance activities would be on an as-needed basis with routine monitoring performed by existing staff and would not generate significant new noise. Any impacts would be temporary and therefore, less than significant.

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

Less than Significant Impact. The construction phase of the proposed Project would primarily consist of excavation and grading as part of development of the new basin. The Project site is in an area with agricultural production. Agricultural production commonly includes the use of off-road equipment and ground-disturbing activities regularly. During construction, Project-related construction activities would not vary substantially from the baseline conditions routinely experienced on neighboring properties. Moreover, ground borne vibration and noise would be restricted to construction apart from minimal, periodic maintenance. Impacts would be less than significant.

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

No Impact. The proposed Project would not be located within an airport land use plan. The Porterville Municipal Airport is located approximately 3.5 miles to the east. The proposed Project does not involve the development of habitable structures or require the presence of permanent staff onsite. There would be no impact.

[28] (Tulare County 2030 General Plan Update, 2010)

4.14 POPULATION AND HOUSING

Table 4-22: Population and Housing Impacts

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

4.14.1 BASELINE CONDITIONS

The Project site is located within unincorporated Tulare County south of the community of Poplar. The site is entirely circumscribed by existing farmland in addition to sparse residences. There are no nearby neighborhoods, and the closest community or city is more than one mile away.

4.14.2 IMPACT ANALYSIS

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

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

a) and b) Less than Significant Impact. The goal of the proposed Project is not to induce population growth. The proposed Project would construct a new basin in an effort to capture and utilize stormwater and flood flows. The proposed Project would not encourage population growth directly or indirectly. No residential structures would be built, and the proposed Project would not displace any number of people. Project activities would not alter housing or the existing community in a way that would result in the need for new housing to be constructed elsewhere. The impacts would be less than significant.

4.15 PUBLIC SERVICES

Table 4-23: Public Services

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
i. Fire protection?	☐	☐	☐	☒
ii. Police protection?	☐	☐	☐	☒
iii. Schools?	☐	☐	☐	☒
iv. Parks?	☐	☐	☐	☒
v. Other public facilities?	☐	☐	☐	☒

4.15.1 BASELINE CONDITIONS

Fire Protection: The Tulare County Fire Department provides fire safety services for residences within the Project area. The County Fire Department maintains a staff of 193 across 28 facilities in the County. The closest fire station (Tulare County Fire Department Battalion 2 West Olive Fire Station 19) is 5.75 miles northeast of the site.

Police Protection: The Project site is served by the Tulare County Sheriff's Department. The Tulare County Sheriff's Department provides police protection services and investigates crimes in unincorporated areas of the County, including rural and semirural areas within the Project Area. The Sheriff's Department is headquartered on the County administrative campus in Visalia and has approximately 590 sworn staff and approximately 270 support staff. The closest police station (Tulare County Sheriff's Office – Terra Bella Substation) is 7.5 miles southeast of the site.

Schools: The Project site is within the broader Porterville Unified School District. Pleasant View West Elementary School is the closest school to the proposed Project at 1.25 miles to the northwest of the site.

Parks: The County's Parks Division is responsible for the operation and maintenance of 11 parks countywide. The closest park to the Project site is the Nagi Dhaifallah Unity Park situated approximately 1.25 miles north of the site.

Landfills: The nearest landfill to the Project site is the Teapot Dome Disposal Site over 1.75 miles southeast of the Project area.

4.15.2 IMPACT ANALYSIS

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

i. Fire Protection:

ii. Police Protection:

iii. Schools:

iv. Parks:

v. Other public facilities:

a. i-v) No Impact. The proposed Project would not result in an increase of population; no residential or office construction is proposed for this proposed Project. There are no recreational lands or public facilities within the proposed Project area. No additional public services would be needed because of the proposed Project. There would be no impact.

4.16 RECREATION

Table 4-24: Recreation Impacts

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

4.16.1 BASELINE CONDITIONS

The Project site and surrounding area are characterized by land in agricultural use as well as sparse residences. There are no parks or recreational facilities within one-half mile of the Project site. The closest park to the Project site is the Nagi Dhaifallah Unity Park, which is situated approximately 1.25 miles north of the site.

4.16.2 IMPACT ANALYSIS

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

No Impact. The proposed basin would not increase the use or demand of any existing neighborhood, regional parks, or other recreational facilities of any kind. No population growth is anticipated or associated with the proposed Project. There would be no impact.

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

No Impact. The proposed Project would not include recreational facilities as part of the proposed Project components, nor does it propose the expansion of any existing recreational facilities. The proposed Project would construct a basin to provide recharge through the sustainable management of groundwater. There would be no impact.

4.17 TRANSPORTATION

Table 4-25: Transportation Impacts

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

4.17.1 BASELINE CONDITIONS

The Project area is characterized by vacant land, agricultural uses, and sparse residences. The site is along W Scranton Avenue near the road's intersection with Road 192. SR 190 runs east to west one mile north of the site.

4.17.2 IMPACT ANALYSIS

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

Less than Significant Impact. Construction associated with the proposed Project would be restricted to the Project site. The Project site and the surrounding area lacks pedestrian and bicycle facilities, and transit service does not stop near the Project site. Any construction-related impacts would be temporary, such as an increase in vehicles and traffic congestion in the surrounding transportation network during times of active construction. Construction hazards would be minimized with signage and enforcement of proper personal protective equipment worn by contractors and inspectors. This also may include signage, cones, and flagging to reduce any hazards during construction. Impacts to the existing roadway would be temporary, and partial access would still occur during the construction phase of the proposed Project. The proposed Project would thus not conflict with plans, policies, or ordinances addressing the circulation system. Therefore, impacts would be less than significant

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

Less than Significant Impact. Project operations would not generate additional vehicle miles traveled, as operations and maintenance trips are not anticipated to increase as part of the proposed Project. Project construction trips would be generated but would be substantially below the County's significance threshold of 500 daily trips. For the County, projects that generate less than 500 trips per day can be presumed to have a less than significant impact.[29] Impacts would be less than significant.

[29] (County of Tulare, 2020)

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

No Impact. The proposed Project does not involve geometric roadway features or propose incompatible uses. No additional public roads would be constructed as a result of the proposed Project. Therefore, there would be no impact.

d) Would the project result in inadequate emergency access?

Less than Significant Impact. The proposed Project does not propose new roadway design features or permanent alterations to public roadways at the basin site. All potential disturbances to roadways during construction would be temporary. Road closures and detours are not anticipated as part of the construction phase of the proposed Project. The operational phase of the proposed Project would have no effect on public roadways or emergency access. Therefore, overall potential Project-related impacts to emergency access on local roadways would be considered less than significant.

4.18 TRIBAL CULTURAL RESOURCES

Table 4-26: Tribal Cultural Resources Impacts

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

4.18.1 BASELINE CONDITIONS

The Project site is in the Southern Valley Yokuts ethnographic territory of the San Joaquin Valley. The Yokuts were generally divided into three major groups, the Northern Valley Yokuts, the Southern Valley Yokuts, and the Foothill Yokuts. The Yokuts are a sub-group of the Penutian language that covers much of coastal and central California and Oregon. Most local tribe populations ranged from 150 to 500 people. Prior to Euro-American contact, there was abundance of natural resources within the greater Tulare Lake area. Due to these resources, Yokuts maintained some of the largest populations in North America west of the continental divide.

4.18.1.1 PUBLIC RESOURCES CODE SECTION 21080.3.1, ET SEQ. (CODIFICATION OF AB 52, 2013-14)

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

4.18.1.2 RECORDS SEARCH

An archival records search was conducted at the California State University, Bakersfield, SSJVIC, by SSJVIC staff members on March 19, 2025, to determine: (i) if prehistoric or historical cultural resources had previously been recorded within the APE; (ii) if the APE had been systematically surveyed by archaeologists prior to the initiation of this field study; and/or (iii) whether the region of the proposed Project was known to contain archaeological sites and to thereby be archaeologically sensitive.

According to the records search results, there is one recorded resource within the proposed Project APE but no other recorded resources within a one-half mile radius of the proposed Project (see Appendix C).

4.18.1.3 NATIVE AMERICAN OUTREACH

The NAHC in Sacramento was also contacted on March 19, 2025. They were provided with a brief description of the proposed Project and a map showing its location and requested that the NAHC perform a search of the Sacred Lands File (SLF) to determine if any Native American resources have been recorded in the immediate APE. The NAHC identifies, catalogs, and protects Native American cultural resources -- ancient places of special religious or social significance to Native Americans and known ancient graves and cemeteries of Native Americans on private and public lands in California. The NAHC is also charged with ensuring California Native American tribes' accessibility to ancient Native American cultural resources on public lands, overseeing the treatment and disposition of inadvertently discovered Native American human remains and burial items, and administering the California Native American Graves Protection and Repatriation Act, among many other powers and duties. NAHC provide a current list of Native American Tribal contacts to notify of the project. The results of the SLF search were negative for the presence of tribal cultural resources. The six tribal representatives identified by NAHC, which are listed below, were contacted in writing via United States Postal Service in a letter mailed in April 2025, informing each Tribe of the proposed Project.

1. *Chairperson Delia Dominguez of Kitanemuk & Yowlumne Tejon Indians;*
2. *Cultural Resource Director Bob Pennell of the Table Mountain Rancheria;*
3. *Chairperson Michelle Heredia-Cordova of the Table Mountain Rancheria;*
4. *Environmental Department Kerri Vera of the Tule River Tribe;*
5. *Chairperson Neil Peyron of the Tule River Indian Tribe; and*
6. *Chairperson Kenneth Woodrow of the Wuksache Indian Tribe/Eshom Valley Band.*

4.18.2 IMPACT ASESSMENT

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

i. Listed or eligible for listing in the California Register of Historical Resources, or in the local register of historical resources as defined in Public Resources Code section 5020.1(k), or

ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public

Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

Less than Significant Impact with Mitigation Incorporated. The NAHC was contacted via letter on March 19, 2025, and responded by stating that the SLF was negative. The NAHC also supplied a list of Native American representatives to contact for information or knowledge of cultural resources in the APE and the surrounding area. The outreach letters were sent to all the Native American representatives on the contact list (as listed above) on April 7, 2025. The letters included a description of the proposed Project and a topographic map and aerial photograph of the location. Follow-up by emails were sent on April 16, 2025. Bob Pennell, Cultural Resource Director of the Table Mountain Rancheria, responded on April 17, 2025. He stated that the proposed Project is outside of Table Mountain Rancheria's area of cultural interest and to consult with the Tule River Tribe's Tribal Historic Preservation Officer. No other responses were received by the Native American representatives, nor was any information shared regarding tribal cultural resources pertaining to the Project area.

There is little chance the proposed Project would cause a substantial adverse change to the significance of a tribal cultural resource as defined. Mitigation Measures **CUL-1 and CUL-2,** described in Section 4.5.3 are recommended in the event cultural materials or human remains are unearthed during excavation or construction. Implementation of mitigation measures outlined above would reduce impacts to tribal cultural resources to less than significant impacts.

4.18.3 MITIGATION

See **CUL-1** and **CUL-2** outlined above in Section 4.5.3.

4.19 UTILITIES AND SERVICE SYSTEMS

Table 4-27: Utilities and Service Systems Impacts

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

4.19.1 BASELINE CONDITIONS

4.19.1.1 WATER SUPPLY

The proposed Project is located within the Tule Groundwater Subbasin of the San Joaquin Valley Groundwater Basin, as defined by the California Department of Water Resources Groundwater Bulletin 118. Declines in groundwater basin storage and groundwater overdraft are recurring problems in the County. Measures for ensuring the continued availability of groundwater for municipal needs have been identified and planned in several areas of the County. The measures include groundwater conservation and recharge as well as supplementing or replacing groundwater surfaces for irrigation with surface water.

4.19.1.2 WASTEWATER COLLECTION AND TREATMENT

The nearest wastewater treatment facility is located in the City of Porterville about 5.5 miles northeast of the site.

4.19.1.3 LANDFILLS

The closest landfill to the Project site is the Teapot Dome Disposal Site, situated approximately 1.75 miles southeast of the Project site; however, no substantial solid waste would be generated during construction or operation.

4.19.1.4 ELECTRICITY, NATURAL GAS, AND TELECOMMUNICATIONS

SCE is the primary energy provider in the Project area. An existing power line runs along the roadway on the north side of the Project site. Neither natural gas pipelines nor telecommunications infrastructure are present on the Project site.

4.19.2 IMPACT ANALYSIS

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

No Impact. The proposed Project would not require the relocation or construction of new or expanded facilities for water, wastewater treatment, storm water drainage, electric power, natural gas, or telecommunications. The proposed Project includes the construction of a new basin, but it would not cause significant environmental effects related to utilities as the proposed Project would follow all required standards and policies. There is an existing electricity connection available on the north side of the Project site. Additionally, the proposed Project would likely increase water supply, improve groundwater conditions, reduce costs to produce groundwater, increase diversification and availability of water supplies, and facilitate compliance with SGMA. There would be no impact.

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

No Impact. The proposed Project consists of the construction of a 41.7-acre basin that would capture available surface water for recharge. The water would be used in the District's and GSA's efforts to achieve groundwater sustainability. Project operation would be passive and would not reduce the area's available water supply under any scenario. There would be no impact.

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

No Impact. The proposed Project does not require or propose any wastewater collection or treatment and therefore would not create or increase any wastewater demand on any wastewater treatment provider. There would be no impact.

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

Less than Significant Impact. The proposed Project would generate some solid waste during construction; however, it would be temporary and properly disposed of during construction and upon completion. Operation of the basin would not generate solid waste. Any impacts with regard to solid waste would be less than significant.

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

Less than Significant Impact. The proposed Project operation itself is not anticipated to produce any solid waste. However, the proposed Project is required and would be expected to comply with any federal, State, and local regulations regarding solid waste management during the construction period. There would be no impact.

4.20 WILDFIRE

Table 4-28: Wildfire Impacts

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

4.20.1 BASELINE CONDITIONS

The Project site is located approximately eight miles southwest of the nearest State Responsibility Area (SRA) and approximately eight miles southwest of the nearest High or Very High Fire Hazard Severity Area according to CalFIRE.[30] The Project site is not located in an area known for wildfires.

4.20.2 IMPACT ANALYSIS

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

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

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

[30] (CalFIRE, 2023)

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

a-d) No Impact. The Project site is not located in or near an SRA nor located on lands classified as very high fire hazard severity zones. The nearest SRA fire Hazard Zone is located approximately eight miles southwest of the Project site. Construction or implementation of the basin would not impede any existing or future emergency response plans. The Project site and the surrounding lands mostly consist of agricultural and related infrastructure on relatively flat and open land. Additionally, the proposed Project does not include the construction of any residential components or structures of any kind, nor would it require any employees to be stationed permanently at the site on a daily basis. There would be no impact.

4.21 CEQA MANDATORY FINDINGS OF SIGNIFICANCE

Table 4-29: CEQA Mandatory Findings of Significance

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

4.21.1 STATEMENT OF FINDINGS

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

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

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

Less than Significant. CEQA Guidelines Section 15064(i) states that a Lead Agency shall consider whether the cumulative impact of a project is significant and whether the effects of the project are cumulatively considerable. The assessment of the significance of the cumulative effects of a project must, therefore, be conducted in connection with the effects of past projects, other current projects, and probable future projects. The proposed Project would include the construction of a basin used for groundwater recharge.

No additional public roads would be constructed as a result of the proposed Project, nor would any additional public services be required. The proposed Project is not expected to result in direct or indirect population growth. Therefore, implementation of the proposed Project would not result in significant cumulative impacts and all potential impacts would be reduced to less than significant through the implementation of mitigation measures and basic regulatory requirements incorporated into future Project design.

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

Less than Significant. The Project would include the construction of a basin in Tulare County. The proposed Project in and of itself would not create a significant hazard to the public or the environment. Construction-related air quality/dust exposure impacts could occur temporarily as a result of Project construction. However, implementation of basic regulatory requirements identified in this IS/MND would ensure that impacts are less than significant. Therefore, the proposed Project would not have any direct or indirect adverse impacts on humans. The impacts would be less than significant.

CHAPTER 5 MITIGATION, MONITORING, AND REPORTING PROGRAM

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

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

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

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

Mitigation, Monitoring, and Reporting Program						
Item	Mitigation Measure	When Monitoring is to Occur	Frequency of Monitoring	Agency Responsible for Monitoring	Method to Verify Compliance	Verification of Compliance
Biological Resources						
BIO-1	(BMPs): The proposed Project proponent will require that all workers employ the following best management practices (BMPs) in order to avoid and minimize potential impacts to special status species: • Vehicles will observe a 15-mph speed limit while on unpaved access routes. • All open trenches, holes, sumps, and other excavations greater than 6-inches with sidewalls steeper than a 1:1 (45 degree) slope will have an escape ramp of earth or a non-slip material with a less than 1:1 slope or these will be covered with barrier material such that animals are unable to dig or squeeze under the barrier and become entrapped. • Workers will inspect areas beneath parked vehicles, equipment, and materials prior to mobilization. If special status species are detected, the individual will either be allowed to leave of its own volition or will be captured by the qualified biologist (must possess appropriate collecting/handling permits) and relocated out of harm's way to the nearest suitable habitat beyond the influence of the Project work area. "Take" of a state or federal special status (rare, California Species of Special Concern, threatened, or endangered) species is prohibited without the necessary federal or State take permit(s).	Throughout construction activities	Daily	District		
BIO-2	(Avoidance): The proposed Project's construction activities will occur, if feasible, between September 1 and January 31 (outside of the nesting bird season) to avoid impacts to nesting birds.	Prior to construction activities	Prior to construction activities	District		

Item	Mitigation Measure	When Monitoring is to Occur	Frequency of Monitoring	Agency Responsible for Monitoring	Method to Verify Compliance	Verification of Compliance
BIO-3	**(Pre-construction Surveys)**: If activities must occur within the nesting bird season (February 1 to August 31), a qualified biologist (someone able to identify these species) will conduct a pre-construction survey for active nests within seven (7) calendar days prior to the start of construction. It will be completed within the Project site, and up to 50 feet outside of the Project site for nesting migratory birds and up to 450 feet outside of the Project site for nesting raptors. Raptor nests are considered "active" upon the nest-building stage. If no active nests are observed, no further mitigation is required.	Prior to construction activities	Prior to construction activities	District		
BIO-4	**(Avoidance Buffers)**: On discovery of any active nests or breeding colonies near work areas, a qualified biologist will determine appropriate avoidance buffer distances based on applicable CDFW and/or USFWS guidelines, the biology of the species, conditions of the nest(s), and the level of Project disturbance.	Prior to construction activities	Prior to construction activities	District		
	Cultural Resources					
CUL-1	**(Archaeological Remains)**: Should archeological remains or artifacts be unearthed during any stage of project activities, work in the area of the discovery shall cease until the area is evaluated by a qualified archaeologist. If mitigation is warranted, the project proponent shall abide by recommendations of the archaeologist.	During construction	Daily during construction activities	District		
CUL-2	**(Human Remains)**: In the event that human remains are discovered on the Project site, the Tulare County Coroner must be notified of that discovery (Health and Safety Code Section 7050.5) and all activities in the immediate area if the find or in any nearby area reasonably suspected of overlie adjacent human remains must cease until appropriate and lawful measures have been implemented. If the Coroner determines that the remains are not recent, but	During construction	Daily during construction activities	District		

Mitigation, Monitoring, and Reporting Program						
Item	Mitigation Measure	When Monitoring is to Occur	Frequency of Monitoring	Agency Responsible for Monitoring	Method to Verify Compliance	Verification of Compliance
	rather of Native American origin, the Coroner shall notify the Native American Heritage Commission (NAHC) in Sacramento within 24 hours to permit the NAHC to determine the most likely descendent of the deceased Native American.					
Tribal Cultural Resources						
See **CUL-1** and **CUL-2** above.						

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APPENDICES

Appendix A – CalEEmod Output Files

Poplar Basin Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Schott Basin
Construction Start Date	9/1/2025
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.10
Precipitation (days)	23.0
Location	36.036786277160715, -119.13819437544541
County	Tulare
City	Unincorporated
Air District	San Joaquin Valley APCD
Air Basin	San Joaquin Valley
TAZ	2736
EDFZ	9
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas
App Version	2022.1.1.29

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Other Non-Asphalt Surfaces	40.0	Acre	40.0	0.00	0.00	—	—	—
Road Construction	0.02	Mile	0.02	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

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

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	7.91	6.68	59.1	61.8	0.11	2.57	6.20	8.78	2.37	2.78	5.15	—	12,099	12,099	0.50	0.11	1.15	12,146
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.90	3.29	29.8	29.1	0.06	1.23	2.50	3.74	1.14	0.98	2.11	—	6,706	6,706	0.28	0.06	0.01	6,730
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.96	0.81	7.36	7.21	0.01	0.31	0.68	0.99	0.28	0.28	0.56	—	1,615	1,615	0.07	0.01	0.05	1,621
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.18	0.15	1.34	1.32	< 0.005	0.06	0.12	0.18	0.05	0.05	0.10	—	267	267	0.01	< 0.005	0.01	268

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	7.91	6.68	59.1	61.8	0.11	2.57	6.20	8.78	2.37	2.78	5.15	—	12,099	12,099	0.50	0.11	1.15	12,146

Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	3.90	3.29	29.8	29.1	0.06	1.23	2.50	3.74	1.14	0.98	2.11	—	6,706	6,706	0.28	0.06	0.01	6,730
2026	3.72	3.13	27.3	28.3	0.06	1.12	2.50	3.62	1.03	0.98	2.01	—	6,703	6,703	0.28	0.06	0.01	6,728
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.96	0.81	7.36	7.21	0.01	0.31	0.68	0.99	0.28	0.28	0.56	—	1,615	1,615	0.07	0.01	0.05	1,621
2026	0.43	0.36	3.15	3.27	0.01	0.13	0.29	0.42	0.12	0.11	0.23	—	774	774	0.03	0.01	0.02	777
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.18	0.15	1.34	1.32	< 0.005	0.06	0.12	0.18	0.05	0.05	0.10	—	267	267	0.01	< 0.005	0.01	268
2026	0.08	0.07	0.57	0.60	< 0.005	0.02	0.05	0.08	0.02	0.02	0.04	—	128	128	0.01	< 0.005	< 0.005	129

3. Construction Emissions Details

3.1. Linear, Grubbing & Land Clearing (2025) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.46	0.39	3.39	3.49	< 0.005	0.21	—	0.21	0.19	—	0.19	—	490	490	0.02	< 0.005	—	492
Dust From Material Movement	—	—	—	—	—	—	0.14	0.14	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.34	1.34	< 0.005	< 0.005	—	1.35
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.22	0.22	< 0.005	< 0.005	—	0.22
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.24	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	30.2	30.2	< 0.005	< 0.005	0.12	30.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.08	0.08	< 0.005	< 0.005	< 0.005	0.08
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.01	0.01	< 0.005	< 0.005	< 0.005	0.01
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.3. Linear, Grading & Excavation (2025) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.71	3.11	27.3	29.4	0.06	1.21	—	1.21	1.11	—	1.11	—	6,496	6,496	0.26	0.05	—	6,518
Dust From Material Movement	—	—	—	—	—	—	0.83	0.83	—	0.09	0.09	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	0.01	0.01	0.07	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	17.8	17.8	< 0.005	< 0.005	—	17.9
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.95	2.95	< 0.005	< 0.005	—	2.96
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.17	0.16	0.09	1.43	0.00	0.00	0.16	0.16	0.00	0.04	0.04	—	181	181	0.01	0.01	0.69	184
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	21.5	21.5	< 0.005	< 0.005	0.06	22.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.46	0.46	< 0.005	< 0.005	< 0.005	0.46
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.06	0.06	< 0.005	< 0.005	< 0.005	0.06
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.08	0.08	< 0.005	< 0.005	< 0.005	0.08
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.01	0.01	< 0.005	< 0.005	< 0.005	0.01
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Linear, Drainage, Utilities, & Sub-Grade (2025) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.99	2.51	22.9	23.6	0.05	0.91	—	0.91	0.84	—	0.84	—	5,694	5,694	0.23	0.05	—	5,713
Dust From Material Movement	—	—	—	—	—	—	0.69	0.69	—	0.07	0.07	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.06	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.6	15.6	< 0.005	< 0.005	—	15.7
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.58	2.58	< 0.005	< 0.005	—	2.59
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.14	0.13	0.08	1.19	0.00	0.00	0.14	0.14	0.00	0.03	0.03	—	151	151	0.01	0.01	0.58	154
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.38	0.38	< 0.005	< 0.005	< 0.005	0.39
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.06	0.06	< 0.005	< 0.005	< 0.005	0.06
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Site Preparation (2025) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.94	3.31	31.6	30.2	0.05	1.37	—	1.37	1.26	—	1.26	—	5,295	5,295	0.21	0.04	—	5,314
Dust From Material Movement	—	—	—	—	—	—	5.11	5.11	—	2.63	2.63	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.87	0.83	< 0.005	0.04	—	0.04	0.03	—	0.03	—	145	145	0.01	< 0.005	—	146
Dust From Material Movement	—	—	—	—	—	—	0.14	0.14	—	0.07	0.07	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.02	0.02	0.16	0.15	< 0.005	0.01	—	0.01	0.01	—	0.01	—	24.0	24.0	< 0.005	< 0.005	—	24.1
Dust From Material Movement	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.09	0.05	0.83	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	106	106	0.01	< 0.005	0.40	108
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.65	2.65	< 0.005	< 0.005	< 0.005	2.70
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.44	0.44	< 0.005	< 0.005	< 0.005	0.45
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Grading (2025) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.80	3.20	29.7	28.3	0.06	1.23	—	1.23	1.14	—	1.14	—	6,599	6,599	0.27	0.05	—	6,622
Dust From Material Movement	—	—	—	—	—	—	2.39	2.39	—	0.95	0.95	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.80	3.20	29.7	28.3	0.06	1.23	—	1.23	1.14	—	1.14	—	6,599	6,599	0.27	0.05	—	6,622
Dust From Material Movement	—	—	—	—	—	—	2.39	2.39	—	0.95	0.95	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.81	0.68	6.33	6.04	0.01	0.26	—	0.26	0.24	—	0.24	—	1,408	1,408	0.06	0.01	—	1,412
Dust From Material Movement	—	—	—	—	—	—	0.51	0.51	—	0.20	0.20	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.12	1.16	1.10	< 0.005	0.05	—	0.05	0.04	—	0.04	—	233	233	0.01	< 0.005	—	234
Dust From Material Movement	—	—	—	—	—	—	0.09	0.09	—	0.04	0.04	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.11	0.06	0.95	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	121	121	0.01	0.01	0.46	123
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.09	0.07	0.75	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	107	107	0.01	0.01	0.01	109
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.01	0.16	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	23.6	23.6	< 0.005	< 0.005	0.04	24.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.91	3.91	< 0.005	< 0.005	0.01	3.98

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.11. Grading (2026) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.62	3.04	27.2	27.6	0.06	1.12	—	1.12	1.03	—	1.03	—	6,599	6,599	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	2.39	2.39	—	0.95	0.95	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.42	0.35	3.14	3.18	0.01	0.13	—	0.13	0.12	—	0.12	—	762	762	0.03	0.01	—	764
Dust From Material Movement	—	—	—	—	—	—	0.28	0.28	—	0.11	0.11	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.57	0.58	< 0.005	0.02	—	0.02	0.02	—	0.02	—	126	126	0.01	< 0.005	—	127
Dust From Material Movement	—	—	—	—	—	—	0.05	0.05	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.07	0.69	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	105	105	0.01	0.01	0.01	106
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	12.5	12.5	< 0.005	< 0.005	0.02	12.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.07	2.07	< 0.005	< 0.005	< 0.005	2.11
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

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

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

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

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

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

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

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

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	9/1/2025	9/1/2025	5.00	1.00	—
Linear, Grading & Excavation	Linear, Grading & Excavation	9/2/2025	9/2/2025	5.00	1.00	—
Linear, Drainage, Utilities, & Sub-Grade	Linear, Drainage, Utilities, & Sub-Grade	9/3/2025	9/3/2025	5.00	1.00	—
Site Preparation	Site Preparation	9/1/2025	9/13/2025	5.00	10.0	—
Grading	Grading	9/14/2025	2/28/2026	5.00	120	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Linear, Grubbing & Land Clearing	Crawler Tractors	Diesel	Average	1.00	8.00	87.0	0.43
Linear, Grubbing & Land Clearing	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Linear, Grubbing & Land Clearing	Signal Boards	Electric	Average	0.00	8.00	6.00	0.82

Linear, Grading & Excavation	Crawler Tractors	Diesel	Average	1.00	8.00	87.0	0.43
Linear, Grading & Excavation	Excavators	Diesel	Average	3.00	8.00	36.0	0.38
Linear, Grading & Excavation	Graders	Diesel	Average	1.00	8.00	148	0.41
Linear, Grading & Excavation	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Linear, Grading & Excavation	Rubber Tired Loaders	Diesel	Average	1.00	8.00	150	0.36
Linear, Grading & Excavation	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Linear, Grading & Excavation	Signal Boards	Electric	Average	0.00	8.00	6.00	0.82
Linear, Grading & Excavation	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Linear, Drainage, Utilities, & Sub-Grade	Air Compressors	Diesel	Average	1.00	8.00	37.0	0.48
Linear, Drainage, Utilities, & Sub-Grade	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Linear, Drainage, Utilities, & Sub-Grade	Graders	Diesel	Average	1.00	8.00	148	0.41
Linear, Drainage, Utilities, & Sub-Grade	Plate Compactors	Diesel	Average	1.00	8.00	8.00	0.43
Linear, Drainage, Utilities, & Sub-Grade	Pumps	Diesel	Average	1.00	8.00	11.0	0.74
Linear, Drainage, Utilities, & Sub-Grade	Rough Terrain Forklifts	Diesel	Average	1.00	8.00	96.0	0.40
Linear, Drainage, Utilities, & Sub-Grade	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Linear, Drainage, Utilities, & Sub-Grade	Signal Boards	Electric	Average	0.00	8.00	6.00	0.82
Linear, Drainage, Utilities, & Sub-Grade	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00	8.00	367	0.40

Site Preparation	Tractors/Loaders/Back	Diesel	Average	4.00	8.00	84.0	0.37
Grading	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Grading	Tractors/Loaders/Back hoes	Diesel	Average	2.00	8.00	84.0	0.37

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	7.70	LDA,LDT1,LDT2
Site Preparation	Vendor	—	6.80	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	20.0	7.70	LDA,LDT1,LDT2
Grading	Vendor	—	6.80	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Linear, Grubbing & Land Clearing	—	—	—	—
Linear, Grubbing & Land Clearing	Worker	5.00	7.70	LDA,LDT1,LDT2
Linear, Grubbing & Land Clearing	Vendor	0.00	6.80	HHDT,MHDT
Linear, Grubbing & Land Clearing	Hauling	0.00	20.0	HHDT
Linear, Grubbing & Land Clearing	Onsite truck	—	—	HHDT
Linear, Grading & Excavation	—	—	—	—
Linear, Grading & Excavation	Worker	30.0	7.70	LDA,LDT1,LDT2

Linear, Grading & Excavation	Vendor	1.00	6.80	HHDT,MHDT
Linear, Grading & Excavation	Hauling	0.00	20.0	HHDT
Linear, Grading & Excavation	Onsite truck	—	—	HHDT
Linear, Drainage, Utilities, & Sub-Grade	—	—	—	—
Linear, Drainage, Utilities, & Sub-Grade	Worker	25.0	7.70	LDA,LDT1,LDT2
Linear, Drainage, Utilities, & Sub-Grade	Vendor	0.00	6.80	HHDT,MHDT
Linear, Drainage, Utilities, & Sub-Grade	Hauling	0.00	20.0	HHDT
Linear, Drainage, Utilities, & Sub-Grade	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

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

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Linear, Grubbing & Land Clearing	—	—	0.02	0.00	—
Linear, Grading & Excavation	—	—	0.02	0.00	—
Linear, Drainage, Utilities, & Sub-Grade	—	—	0.02	0.00	—

Site Preparation	—	—	15.0	0.00	—
Grading	—	—	360	0.00	—

5.6.2. Construction Earthmoving Control Strategies

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

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Other Non-Asphalt Surfaces	40.0	0%
Road Construction	0.02	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2025	0.00	532	0.03	< 0.005
2026	0.00	532	0.03	< 0.005

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

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

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

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

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	30.5	annual days of extreme heat
Extreme Precipitation	0.75	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	0.00	annual hectares burned

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

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	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	82.5
AQ-PM	94.6
AQ-DPM	16.5
Drinking Water	99.2
Lead Risk Housing	58.2
Pesticides	89.6
Toxic Releases	18.7
Traffic	5.99
Effect Indicators	—
CleanUp Sites	80.9
Groundwater	93.6
Haz Waste Facilities/Generators	71.6
Impaired Water Bodies	43.8
Solid Waste	75.7
Sensitive Population	—
Asthma	65.9
Cardio-vascular	86.1
Low Birth Weights	44.5
Socioeconomic Factor Indicators	—

Education	86.7
Housing	66.1
Linguistic	87.9
Poverty	85.6
Unemployment	99.7

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	7.981521879
Employed	12.04927499
Median HI	12.63954831
Education	—
Bachelor's or higher	17.25907866
High school enrollment	100
Preschool enrollment	22.08392147
Transportation	—
Auto Access	74.57975106
Active commuting	7.35275247
Social	—
2-parent households	46.32362376
Voting	46.91389709
Neighborhood	—
Alcohol availability	68.71551392
Park access	7.493904786
Retail density	3.554471962
Supermarket access	14.19222379

Tree canopy	64.63492878
Housing	—
Homeownership	51.00731426
Housing habitability	39.48415244
Low-inc homeowner severe housing cost burden	23.77774926
Low-inc renter severe housing cost burden	34.33850892
Uncrowded housing	37.31553959
Health Outcomes	—
Insured adults	52.48299756
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	20.9
Cognitively Disabled	66.4
Physically Disabled	29.8
Heart Attack ER Admissions	14.4
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	62.3
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	39.2
Elderly	43.3
English Speaking	48.4
Foreign-born	51.5
Outdoor Workers	0.3
Climate Change Adaptive Capacity	—
Impervious Surface Cover	92.0
Traffic Density	6.9
Traffic Access	0.0
Other Indices	—
Hardship	87.3
Other Decision Support	—
2016 Voting	57.9

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	96.0
Healthy Places Index Score for Project Location (b)	16.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

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

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	Construction schedule.

Appendix B – Biological Evaluation

LOWER TULE RIVER IRRIGATION DISTRICT

POPLAR BASIN PROJECT BIOLOGICAL EVALUATION

TIPTON, CA
APRIL 2025

PREPARED FOR:
Lower Tule River Irrigation District
Tipton, CA

PREPARED BY:
PROVOST & PRITCHARD CONSULTING GROUP
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Report Prepared for:

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GIS Specialist: Ben Toews
Project Administrator: Jackie Lancaster

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ACRONYMS AND ABBREVIATIONS

BMP	Best Management Practices
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
County	Tulare County
District	Lower Tule River Irrigation District
ECOS	United States Fish and Wildlife Service's Environmental Conservation Online System
EFH	Essential Fish Habitat
EPA	Environmental Protection Agency
°F	degrees Fahrenheit
HCP	Habitat Conservation Plan
IPaC	United States Fish and Wildlife Service's Information for Planning and Consultation system
MBTA	Migratory Bird Treaty Act
NCCP	Natural Community Conservation Plan
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
OHWM	Ordinary High Water Mark
Project	Poplar Basin Project
Provost & Pritchard	Provost & Pritchard Consulting Group
RWQCB	Regional Water Quality Control Board
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
USACE	United States Army Corps of Engineers
USC	United States Code
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

1 INTRODUCTION

This Biological Evaluation, prepared by Provost & Pritchard Consulting Group (Provost & Pritchard) in compliance with the California Environmental Quality Act (CEQA) includes descriptions of the biological resources present or with potential to occur within the Lower Tule River Irrigation District (LTRID) Poplar Basin Project (or "Project") and surrounding areas, potential Project-related impacts to those resources, and mitigation measures to reduce these impacts to a less-than-significant level under CEQA.

1.1 PROJECT DESCRIPTION

The Project site (or "site") is located in the San Joaquin Valley, approximately 1-mile south of the community of Poplar and 4 miles southwest of Porterville in the central-southwestern portion of Tulare County, California (see Figure 1).

The proposed 40-acre recharge basin facility would include a new turnout connection from the District's Casa Blanca Ditch on the southern end of the property and approximately 100 feet of pipeline (see Figure 2). Implementation of the Project will help support meeting the objectives of the Sustainable Groundwater Management Act (SGMA) in the Tule Subbasin. The basin would generally be rectangular shape surrounded by lands in active agricultural production. There are two existing turnouts and a check structure along the Casa Blanca Ditch running along the southern border of the Project site. Overhead electricity lines run along the northern border of the site with an existing power pole near the northeast corner of the site.

1.2 REPORT OBJECTIVES

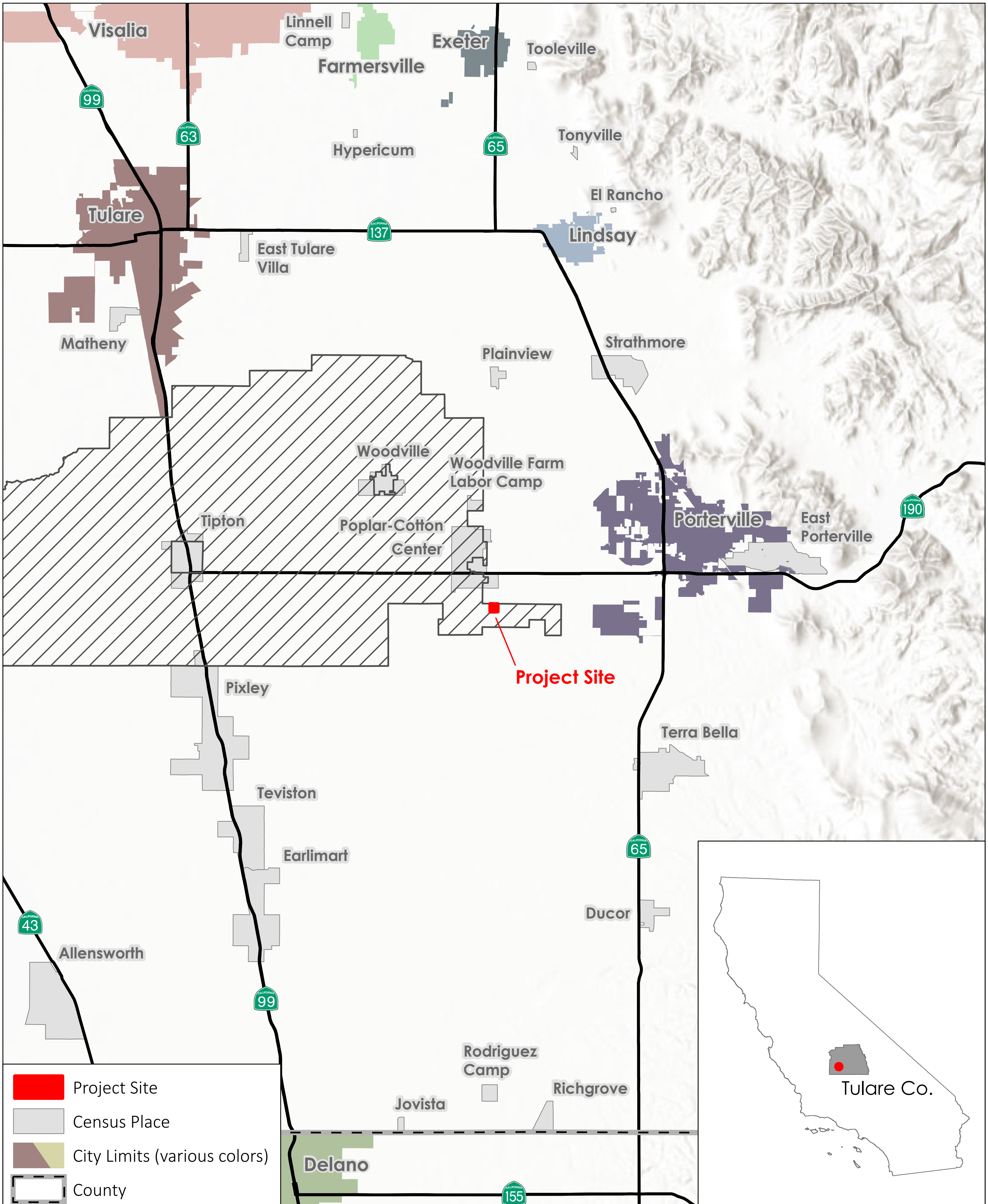
Construction activities such as those proposed by the Project could potentially impact biological resources or habitats that are critical for sensitive plant and wildlife species. In cases such as these, development may be regulated by State or federal agencies, and/or addressed by local regulatory agencies.

This report addresses issues related to the following:

- The presence of sensitive biological resources within the Project site, or those with the potential to occur within the Project site.
- The federal, State, and local regulations regarding these resources.
- Mitigation measures that may be required to reduce the magnitude of anticipated impacts and/or comply with permit requirements of State and federal resource agencies.

Therefore, the objectives of this report are to:

- Summarize all Project site-specific information related to existing biological resources.
- Make reasonable inferences about the biological resources that could occur on the Project site based on habitat suitability and the proximity of the Project site to a species' known range.
- Summarize all State and federal natural resource protection laws that may be relevant to implementation of the Project.
- Identify and discuss Project impacts and effects to biological resources likely to occur onsite within the context of CEQA and/or State or federal laws.
- Identify and prescribe a set of avoidance and minimization measures that would reduce impacts to a less-than-significant level (as identified by CEQA) and are generally consistent with recommendations of the resource agencies for affected biological resources.



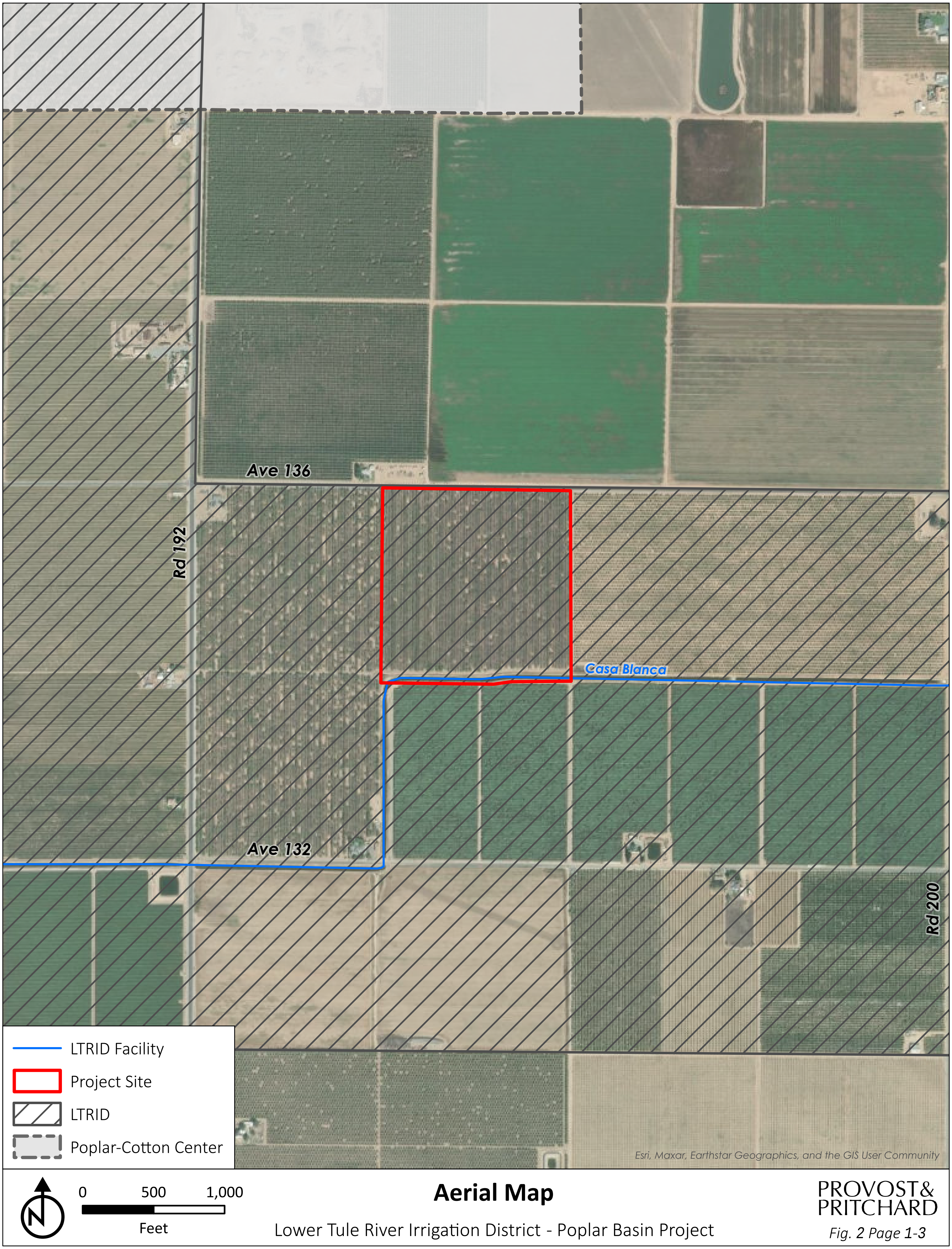
0 2 4
Miles

Regional Vicinity Map

Lower Tule River Irrigation District - Poplar Basin Project

PROVOST&
PRITCHARD

Fig. 1 Page 1-2



Aerial Map

Lower Tule River Irrigation District - Poplar Basin Project

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Fig. 2 Page 1-3

1.3 STUDY METHODOLOGY

A reconnaissance-level field survey of the Project site was conducted on March 20, 2025, by Provost & Pritchard biologist, Olivia Arredondo. The survey consisted of walking and driving throughout the Project site and visually surveying areas outside of the Project site while identifying and noting land uses, biological habitats and communities, and plant and animal species encountered. Habitats were also assessed to help with determining if they could be suitable for various rare or protected plant and animal species. Representative photographs of the site were taken and are presented in Appendix A.

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

The field survey did not include focused surveys for special status species. The field survey conducted included the appropriate level of detail to assess the significance of potential impacts to sensitive biological resources resulting from implementing the Project. Furthermore, the field survey was sufficient to generally describe aquatic features of the Project site that could be claimed as jurisdictional by federal and/or State agencies, such as the United States Army Corps of Engineers (USACE), California Department of Fish and Wildlife (CDFW), Regional Water Quality Control Board (RWQCB), and the State Water Resources Control Board (SWRCB). If Project activities resulted in impacts to aquatic resources and aquatic habitats, this report would be sufficient to support required permit applications, if needed, for the Project.

2 EXISTING CONDITIONS

2.1 REGIONAL SETTINGS

2.1.1 TOPOGRAPHY

The Project site is located within the *Woodville* U.S. Geological Survey (USGS) 7.5-minute quadrangle within the northwestern quarter of Section 11, Township 22 South, Range 26 East. The topography of the Project site is relatively flat with an elevation of approximately 370 feet above mean sea level (see Figure 3).

2.1.2 CLIMATE

Like most of California, the Project area experiences a Mediterranean climate. Warm, dry summers are followed by cool, moist winters. In the summer, average high temperatures range between 95- and 105-degrees Fahrenheit (°F), but do not often exceed 110 °F, and the humidity is generally low. Winter temperatures are often below 70 °F during the day and rarely exceed 75 °F. On average, Porterville, CA receives approximately 5.8 inches of precipitation in the form of rain yearly, most of which occurs between October and March (Center n.d.), and the Project site would be expected to receive similar amounts of precipitation.

2.1.3 HYDROLOGY

The nearest surface water to the Project is the Casa Blanca Ditch which runs along the southern edge of the Project site.

Stormwater or snowmelt runoff from upland areas flows into Frazier Creek, which flows into the Friant-Kern Canal. As the Friant-Kern Canal continues south, it crosses over with Porter Slough, Hubbs Miner Ditch, Wood Central Ditch, and Poplar Ditch. Further south Friant-Kern Canal gets diverted into irrigation canals throughout cropland south of Poplar Cotton Center, CA. Casa Blanca Ditch receives water from these neighboring irrigation canals.

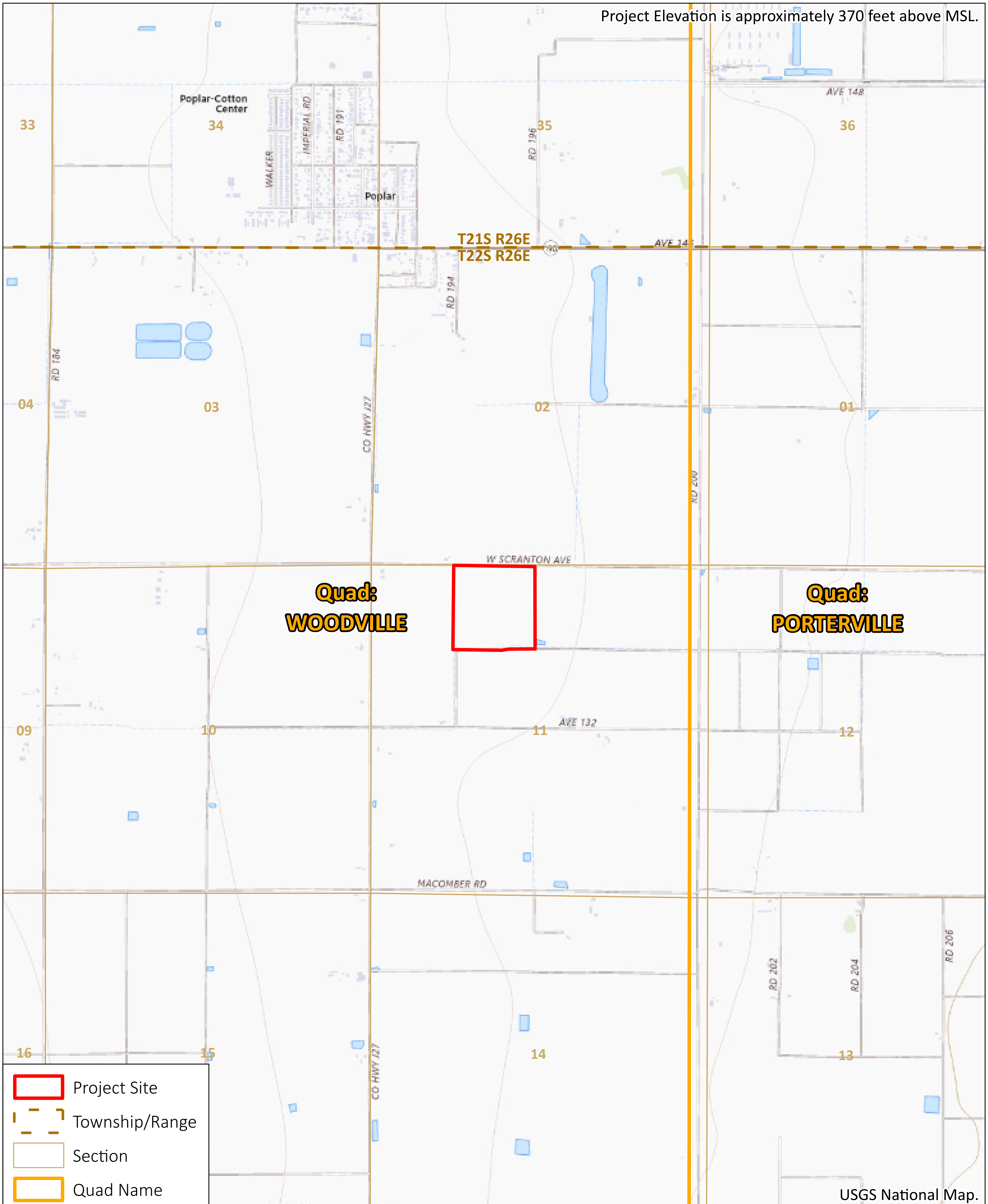
2.1.4 SOILS

Two soil mapping units representing ten soil types were identified within the Project site and are listed in Table 1 (see Appendix D for the Web Soil Survey Report). The soils are displayed with their core properties in the table below, according to the Major Land Resource Area of California. All ten soils are primarily used for grazing, wildlife habitat, and watershed areas.

Table 1: List of Soils Located on the Project Site and Their Basic Properties

Soil	Soil Map Unit	Percent of Site	Hydric Soil Category	Drainage	Permeability	Runoff
Exeter	Loam, 0 to 2 percent slopes	0.2%	Predominantly Nonhydric	Moderately well drained	Low to moderately low	Medium
Flamen	Loam, 0 to 2 percent slopes	99.8%	Predominantly Nonhydric	Moderately well drained	Moderate	Low

Hydric soils are defined as soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions such that under sufficiently wet conditions, hydrophytic vegetation can be supported. Hydric soil ratings are derived from specific soil properties as well as climate, parent material, vegetation, landform type, and biological activity of a certain location. None of the major or minor soil mapping units located on the Project site were identified as hydric.



0 750 1,500
Feet

Topographic Map

Lower Tule River Irrigation District - Poplar Basin Project

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Fig. 3 Page 2-2

2.2 BIOTIC HABITATS

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

2.2.1 NON-NATIVE GRASSLAND

The Project site is primarily located on a fallow agricultural field used previously for almond cultivation and is surrounded by active cropland. The Project site was densely vegetated within this habitat type and dominated by common chickweed (*Stellaria media*), common sowthistle (*Sonchus oleraceus*), Musky stork's bill (*Erodium moschatum*), prickly lettuce (*Lactuca serriola*), rigid fiddleneck (*Amsinckia menziesii*), and bromes (*Bromus* spp.). Other plants identified within the Project site include common groundsel (*Senecio vulgaris*), cheeseweed mallow (*Malva parviflora*), almond (*Prunus amygdalus*), common dandelion (*Taraxacum officinale*), common wheat (*Triticum aestivum*), foxtail barley (*Hordeum jubatum*), great brome (*Bromus diandrus*), henbit deadnettle (*Lamium amplexicaule*), miniature lupine (*Lupinus bicolor*), purple owl's clover (*Castilleja exserta*), redstem filaree (*Erodium cicutarium*), sheperd's purse (*Capsella bursa-pastoris*), and willow herb (*Epilobium ciliatum*). The fungus pale brittlestem (*Candolleomyces candolleanus*) was also identified. Sporadically throughout this habitat there were dense patches of decaying plant matter completely covering the soil and smelled strongly of fertilizer. These patches were much less vegetated than the rest of the grassland but included almond saplings and pale brittlestem.

The survey of the Project site resulted in the identification of numerus bird species including American crow (*Corvus brachyrhynchos*), American robin (*Turdus migratorius*), black phoebe (*Sayornis nigricans*), California scrub-jay (*Aphelocoma californica*), common raven (*Corvus corax*), house finch (*Haemorhous mexicanus*), killdeer (*Charadrius vociferus*), lesser goldfinch (*Spinus psaltria*), mourning dove (*Zenaida macroura*), northern mockingbird (*Mimus polyglottos*), red-tailed hawk (*Buteo jamaicensis*), Say's phoebe (*Sayornis saya*), savannah sparrow (*Passerculus sandwichensis*), turkey vulture (*Cathartes aura*), white-crowned sparrow (*Zonotrichia leucophrys*), western bluebird (*Sialia mexicana*), and yellow-rumped warbler (*Setophaga coronata*). Invertebrates observed in this habitat included Asian lady beetle (*Harmonia axyridis*), common milkweed bug (*Lygaeus kalmia*), and unidentified bees. Coyote (*Canis latrans*) scat and tracks were also observed adjacent to Avenue 136.

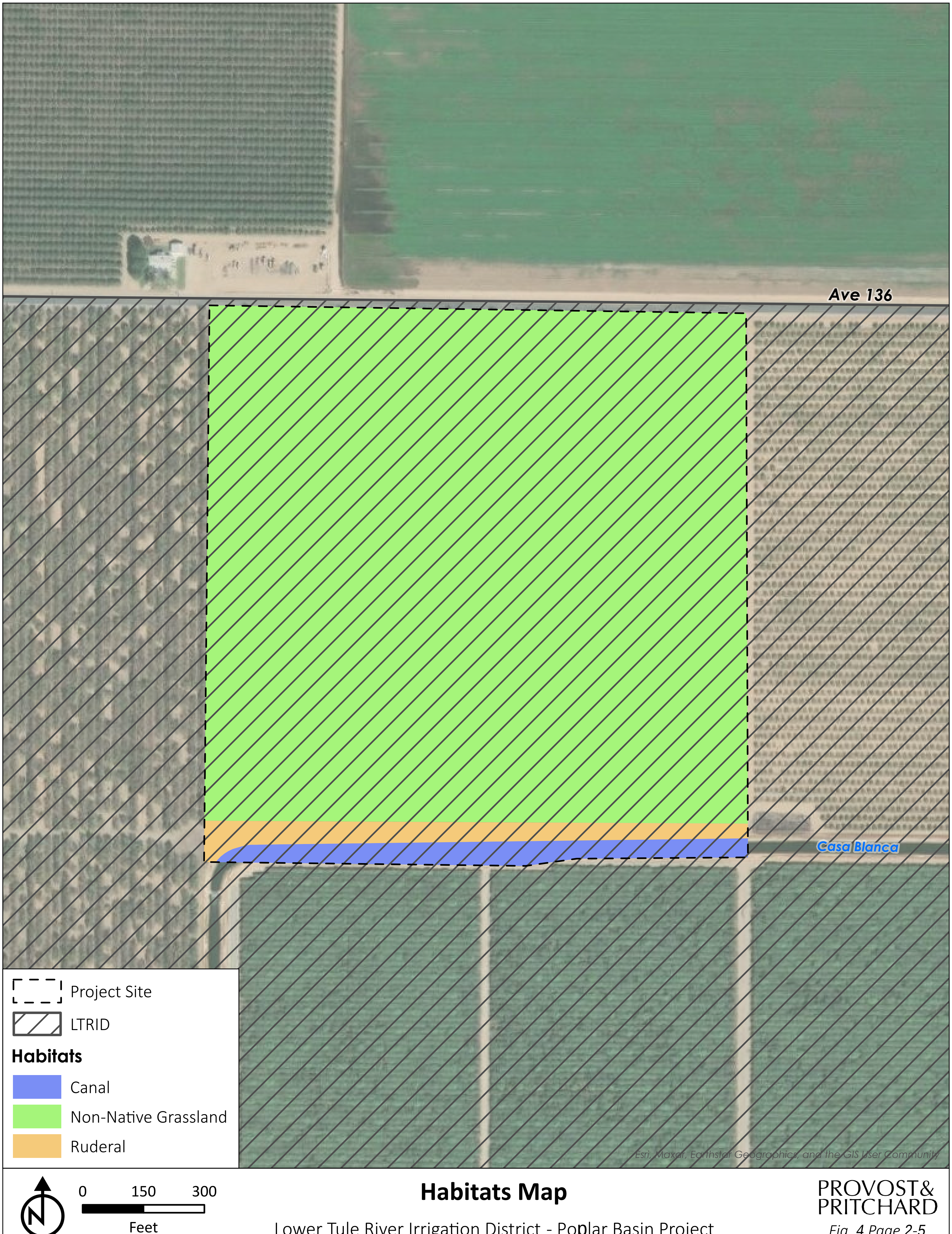
The non-native grassland habitat within the Project site is severely disturbed from past use but after undergoing early succession, it now provides densely vegetated habitat to a variety of wildlife year-round. The Project site serves foraging birds, including raptors, during the day, as well as coyotes and other nocturnal animals at night.

2.2.2 CANAL

The canal habitat included Casa Blanca Ditch which runs along the southern edge of the Project site. Vegetation found within the canal was scarce but included invasive grasses and filamentous algae. Only one small burrow was observed in the entire Project site near the southeastern corner along the canal. The burrow was possibly created by a small rodent, but no scat, tracks, or indication of recent use was observed to aid in identification. While this habitat represents a very minimal portion of the Project site, it is possible for wildlife and plants to utilize this habitat. Casa Blanca Ditch likely act as a corridor for terrestrial wildlife such as mammals, reptiles, and vertebrates when dry. Birds, bats, rodents, larger mammals, invertebrates, and reptiles likely use this as a water source when water is present.

2.2.3 RUDERAL

The ruderal habitat of the Project site contained hard packed dirt roads along the northern side of the canal and composed a very small portion of the Project site. Vegetation in this section of the site was mostly bare besides sparse invasive grasses in along the in between the different habitat types. The survey of this habitat did not result in any new species observations. It is possible for wildlife (including but not limited to mammals such as coyotes) to use the roads within this habitat, especially at night. It is possible for bird who construct nests on the ground such as killdeer and mourning doves to utilize said area for nests, notable during nesting bird season. Miniature lupine and purple owl's clover were observed growing close to the boundary between the non-native grassland habitat and ruderal habitat, meaning it is possible for said species to disperse along the dirt roads.



Habitats Map

Lower Tule River Irrigation District - Poplar Basin Project

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Fig. 4 Page 2-5

2.3 NATURAL COMMUNITIES OF SPECIAL CONCERN AND RIPARIAN HABITAT

Natural communities of special concern are those that are of limited distribution, distinguished by significant biological diversity, or home to special status species. CDFW has classified and mapped all natural communities in California. Just as the special status plant and animal species (see Section 3.6), these natural communities of special concern can be found within the CNDDB. There are no recorded observations of a natural community of special concern mapped within the site and no natural communities of special concern were observed during the field survey.

2.4 DESIGNATED CRITICAL HABITAT

The USFWS often designates areas of "critical habitat" when it lists species as threatened or endangered. Critical habitat is a specific geographic area that contains features essential for the conservation of a threatened or endangered species, which may require special management and protection. According to the IPaC, designated critical habitat is absent from the Project site and vicinity.

2.5 WILDLIFE MOVEMENT CORRIDORS AND NATIVE WILDLIFE NURSERY SITES

Wildlife movement corridors are routes that animals regularly and predictably follow during seasonal migration, dispersal from native ranges, daily travel within home ranges, and inter-population movements. Movement corridors in California are typically associated with valleys, ridgelines, and rivers and creeks supporting riparian vegetation. The canal habitat could potentially act as a corridor for terrestrial wildlife during the dry season, however, the surrounding area is highly disturbed and would discourage use of the canal for dispersal activities.

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

2.6 SPECIAL STATUS PLANTS AND ANIMALS

California contains several rare plant and animal species. In this context, "rare" is defined as a species known to have low populations or limited distributions. Conversion of habitats to accommodate human population growth in turn reduces the already-limited suitable habitat for rare species. This results in rare and sensitive species becoming increasingly more vulnerable to extirpation. State and federal regulations have provided the CDFW and USFWS with mechanisms for conserving and protecting the diversity of plant and animal species native to California. Numerous native plants and animals have been formally designated as "threatened" or "endangered" under state and federal endangered species legislation. Other formal designations include "candidate" for listing or "species of special concern" by CDFW. The CNPS has its list of native plants considered rare, threatened, or endangered. Collectively these animals and plants are referred to as "special status species."

A query of the CNDDB for occurrences of special status plant and animal species was conducted for the *Woodville* USGS 7.5-minute quadrangle that contains the Project site, and for the 8 surrounding USGS quadrangles: *Cairns Corner*, *Ducor*, *Lindsay*, *Pixley*, *Porterville*, *Sausalito School*, *Tipton*, and *Tulare*. A query of the IPaC was also completed for the Project site. These species, and their potential to occur within the Project site, are listed in Table 2 and Table 3, below. Other special status species that did not show up in the CNDDB query, but have the potential to occur in the vicinity, are also included in Table 3. Species lists obtained from CNDDB and IPaC are available in Appendix B and Appendix C, respectively. All relevant sources of information, as discussed in the Study Methodology section of this report, as well as field observations, were used to determine if any special status species have the potential to occur within the Project site.

Table 2: List of Special Status Plants with Potential to Occur on the Project Site and/or in the Vicinity

Species	Status*	Habitat	Occurrence within the Site
Alkali-sink goldfields (*Lasthenia chrysantha*)	CNPS 1B	Found in vernal pool and wet saline flat habitats in the San Joaquin Valley region at elevations below 700 feet. Blooms February – April.	**Absent.** The Project site lacked suitable habitat for this species.
Brittlescale (*Atriplex depressa*)	CNPS 1B	Found in the Central Valley in alkaline or clay soils, typically in meadow or annual grassland habitats at elevations below 1,100 feet. Sometimes associated with vernal pools. Blooms June – October.	**Absent.** The Project site lacked suitable habitat for this species.
Calico monkeyflower (*Diplacus pictus*)	CNPS 1B	Found in the Sierra Nevada foothills and the Tehachapi Mountains in bare, sunny, shrubby areas, around granite outcrops within foothill woodland communities at elevations between 450 and 4,100 feet. Blooms March – May.	**Absent.** The Project site lacked suitable habitat for this species.
California alkali grass (*Puccinellia simplex*)	CNPS 1B	Found in the San Joaquin Valley and other parts of California in saline flats and mineral springs within valley grassland and wetland-riparian communities at elevations below 3,000 feet. Blooms March – May.	**Absent.** The Project site lacked suitable habitat for this species.
California jewelflower (*Caulanthus californicus*)	FE, CE, CNPS 1B	Found in the San Joaquin Valley and western Transverse Ranges in sandy soils. Occurs on flats and slopes, generally in non-alkaline grassland at elevations between 200 and 6,100 feet. Blooms February – April.	**Absent.** The Project site lacked suitable habitat for this species.
Earlimart orache (*Atriplex cordulata* var. *erecticaulis*)	CNPS 1B	Found in the San Joaquin Valley in saline and alkaline soils, typically within valley grasslands at elevations below 400 feet. Blooms August – September.	**Absent.** The Project site lacked suitable habitat for this species.
Kern mallow (*Eremalche parryi* ssp. *kernensis*)	FE, CNPS 1B	Occurs in the San Joaquin Valley and the Southern Inner Coast Ranges in eroded hillsides and alkali flats and often on dry, open, sandy to clay soils and within alkali scrub communities at elevations between 200 and 4,300 feet. Blooms March – May.	**Absent.** The Project site lacked suitable habitat for this species.
Lesser saltscale (*Atriplex minuscula*)	CNPS 1B	Found in the San Joaquin Valley in sandy, alkaline soils in alkali scrub, valley and foothill grassland, and alkali sink communities at elevations below 750 feet. Blooms April – October.	**Absent.** The Project site lacked suitable habitat for this species.

Species	Status*	Habitat	Occurrence within the Site
Lost Hills crownscale (*Atriplex coronata* var. *vallicola*)	CNPS 1B	Found in the San Joaquin Valley in dried ponds and vernal pools with alkaline soils in alkali scrub and valley and foothill grasslands at elevations below 2,900 feet. Blooms April – September.	**Absent.** The Project site lacked suitable habitat for this species.
Recurved larkspur (*Delphinium recurvatum*)	CNPS 1B	Occurs in chenopod scrub, cismontane woodland, and grassland habitats on poorly drained, fine, alkaline soils; often in valley saltbush or valley chenopod scrub communities at elevations between 100 and 2,600 feet. Blooms March – June.	**Absent.** The Project site lacked suitable habitat for this species.
San Joaquin adobe sunburst (*Pseudobahia peirsonii*)	FT, CE, CNPS 1B	Found in the San Joaquin Valley and the Sierra Nevada foothills in bare, dark, clay soils in valley and foothill grassland and cismontane woodland communities at elevations between 300 and 3,000 feet. Blooms March – May.	**Absent.** The Project site lacked suitable habitat for this species.
San Joaquin woollythreads (*Monolopia congdonii*)	FE, CNPS 1B	Occurs in the San Joaquin Valley in sandy soils on alkaline or loamy plains in valley and foothill grassland and alkali scrub communities at elevations between 150 and 2,800 feet. Blooms February – May.	**Absent.** The Project site lacked suitable habitat for this species.
Springville clarkia (*Clarkia springvillensis*)	FT, CE, CNPS 1B	Endemic to the woodlands and grasslands of the southern Sierra Nevada, occurring primarily in the Tule River watershed. Found at elevations between 650 and 7,400 feet. Blooms in May.	**Absent.** The Project site lacked suitable habitat for this species.
Striped adobe-lily (*Fritillaria striata*)	CT, CNPS 1B	Found in the Sierra Nevada foothills in adobe soil within valley grassland and foothill woodland communities at elevations below 3,300 feet. Blooms February – April.	**Absent.** The Project site lacked suitable habitat for this species.
Subtle orache (*Atriplex subtilis*)	CNPS 1B	Found in the San Joaquin Valley in saline depressions in alkaline soils within valley and foothill grassland communities at elevations below 300 feet. Blooms June – October.	**Absent.** The Project site lacked suitable habitat for this species.
Vernal pool smallscale (*Atriplex persistens*)	CNPS 1B	Occurs in the Central Valley in alkaline vernal pools at elevations below 400 feet. Blooms June – September.	**Absent.** The Project site lacked suitable habitat for this species.

Table 3: List of Special Status Animals with Potential to Occur on the Project Site and/or in the Vicinity

Species	Status*	Habitat	Occurrence within the Site
American badger (*Taxidea taxus*)	CSSC	Prefers drier open stages of shrub, forest, and herbaceous habitats with friable soils to burrow, but can be	**Unlikely.** The Project site and surrounding areas are frequently cultivated agricultural lands and

Species	Status*	Habitat	Occurrence within the Site
		found within numerous habitats throughout California, including the margins of agricultural lands. Needs a sufficient prey base of burrowing rodents.	non-native grassland that are unsuitable for this species. No burrows of appropriate size were observed during the survey. The nearest recorded observation of this species within the vicinity was approximately 2 miles east of the Project site during an unknown year.
Bakersfield legless lizard (*Anniella grinnelli*)	CSSC	Can be found burrowing in moist, sandy soil within grassland, sand/dune, or chaparral habitats. Fallen logs, woody debris, and leaf litter under trees and bushes in sunny areas often indicate suitable habitat. The current known range is restricted to the east side of the Carrizo Plain and within the city limits of Bakersfield.	**Unlikely.** The Project site and surrounding areas are frequently cultivated agricultural lands and non-native grassland that are unsuitable for this species. The nearest recorded observation of this species within the vicinity was approximately 13.7 miles southwest of the Project site during 2019.
Blunt-nosed leopard lizard (*Gambelia sila*)	FE, CE, CFP	Occurs in the San Joaquin Valley region in expansive, arid areas with scattered vegetation. Today they inhabit non-native grassland and alkali sink scrub communities of the valley floor marked by poorly drained, alkaline, and saline soils. They can be found at elevations ranging from approx. 100 to 2,600 feet. They are absent from areas with steep slopes and dense vegetation, and areas subject to seasonal flooding. Adults may excavate shallow burrows but rely on deeper pre-existing rodent burrows for hibernation and reproduction.	**Unlikely.** The Project site and surrounding areas consisted of ruderal/ non-native grassland habitat and agricultural fields that are densely vegetated. Insufficient habitat for hibernation and reproduction as only one unoccupied burrow was observed in the entire Project site. The nearest recorded observation of this species within the vicinity was approximately 9 miles west of the Project site in 1911.
Buena Vista Lake ornate shrew (*Sorex ornatus relictus*)	FE, CSSC	Prefers moist soils, inhabiting marshes, swamps, and riparian shrublands in the Tulare Basin. Uses stumps, logs, and leaf litter for cover.	**Absent.** The Project site and surrounding areas consisted of ruderal habitat and agricultural fields/ non-native grassland which do not the aquatic and riparian habitat required by this species.
Burrowing owl (*Athene cunicularia*)	CC, CSSC	Resides in open, dry grasslands, deserts, scrublands, and other areas with low growing vegetation. Nests and roosts underground in existing burrows created by mammals, most often by ground squirrels, and human-made structures.	**Unlikely.** The Project site and surrounding areas do not have burrows for this species to utilize. While the non-native grassland habitat could act as foraging habitat for this species, this habitat was also present throughout the region. The nearest recorded observation of this species within the vicinity was approximately 12 miles southwest of the Project site in 1993.
Coast horned lizard	CSSC	Found in grasslands, coniferous forests, woodlands, and chaparral,	**Unlikely.** The Project site is highly disturbed due to surrounding

Species	Status*	Habitat	Occurrence within the Site
(*Phrynosoma blainvillii*)		primarily in open areas with patches of loose, sandy soil and low-lying vegetation in valleys, foothills, and semi-arid mountains. Frequently found near ant hills and along dirt roads in lowlands along sandy washes with scattered shrubs.	agricultural cultivation. The nearest recorded observation of this species within the vicinity was approximately 13.7 miles southwest of the Project site in 1992.
Conservancy fairy shrimp (*Branchinecta conservatio*)	FE	Found in large, turbid freshwater vernal pools in the Central Valley, from Tehama County in the north to Merced County in the south, with one outlying population in Ventura County's Interior Coast Ranges.	**Absent.** No vernal pools were observed within the Project site.
Crotch's bumble bee (*Bombus crotchii*)	CCE	Occurs throughout coastal California, as well as east to the Sierra Nevada-Cascade crest, and south into Mexico. Food plant genera include snapdragons, scorpionweeds, primroses, poppies, and buckwheats. Nests are often located underground in abandoned rodent nests, or above ground in tufts of grass, old bird nests, rock piles, or cavities in dead trees. This species overwinters under leaf litter or soft soil.	**Unlikely.** The site is highly disturbed due to surrounding agricultural cultivation and lacks suitable plant species to sustain this species. The nearest recorded observation of this species within the vicinity was approximately 6.6 miles east of the Project site in 1963.
Loggerhead shrike (*Lanius ludovicianus*)	CSSC	Frequents open habitats with sparse shrubs and trees, other suitable perches, bare ground, and low herbaceous cover. In the Central Valley, this species nests in riparian areas, desert scrub, and agricultural hedgerows.	**Unlikely.** The Project site is highly disturbed due to surrounding agricultural cultivation. The lack of rodent and small reptile signs indicates inadequate foraging opportunity for this species. The nearest recorded observation of this species within the vicinity was approximately 9 miles west of the Project site in 1918.
Northern California legless lizard (*Anniella pulchra*)	CSSC	Found primarily underground, burrowing in loose, moist, and sandy soil. Forages in loose soil and leaf litter during the day. Occasionally observed on the surface at dusk and night.	**Unlikely.** The Project site is highly disturbed due to surrounding agricultural cultivation and lacked adequate open ground to burrow. The nearest recorded observation of this species within the vicinity was approximately 6.6 miles east of the Project site in 1940.
Northwestern pond turtle (*Actinemys marmorata*)	FPT, CSSC	An aquatic turtle of ponds, marshes, slow-moving rivers, streams, and irrigation ditches with riparian vegetation. Requires adequate basking sites and sandy banks or grassy open fields to deposit eggs.	**Unlikely.** The Project site is highly disturbed due to surrounding agricultural cultivation and lacks riparian vegetation and adequate aquatic habitat. The nearest recorded observation of this species within the vicinity was approximately 17.2 miles east of the Project site in 1988.

Species	Status*	Habitat	Occurrence within the Site
San Joaquin coachwhip (*Masticophis flagellum ruddocki*)	CSSC	Found in open dry habitats with little or no tree cover in valley grassland and saltbush scrub communities in the San Joaquin Valley from the Grapevine north into the inner South Coast Ranges and to Alameda County. Relies on mammal burrows for refuge and oviposition sites.	**Unlikely.** The Project site is highly disturbed due to surrounding agricultural activity. The Project site lacks burrows for this species to utilize for cover and reproduction. The nearest recorded observation of this species within the vicinity was approximately 14.5 miles southwest of the Project site in 1992.
San Joaquin kit fox (*Vulpes macrotis mutica*)	FE, CT	Opportunistically forages in a variety of habitats. Dens in burrows within alkali sink, valley grassland, and woodland habitats in valleys and adjacent foothills and in human-made structures in cities, rangeland, and agricultural areas. Occurs in the San Joaquin Valley and other smaller valleys to the west.	**Unlikely. T**he Project site is highly disturbed due to surrounding agricultural cultivation and lacked adequate open ground to burrow. No potential kit fox dens were identified during the survey. The nearest recorded observation of this species within the vicinity was approximately 1.5 miles east of the Project site in 1975.
Swainson's hawk (*Buteo swainsoni*)	CT	Nests in large trees in open areas adjacent to grasslands, grain or alfalfa fields, or livestock pastures suitable for supporting rodent populations.	**Unlikely.** While the Project site did contain fields this species could forage in, no nesting habitat was present. The nearest recorded observation of this species within the vicinity was approximately 4.2 miles northeast of the Project site in 2017.
Tipton kangaroo rat (*Dipodomys nitratoides nitratoides*)	FE, CE	Inhabits saltbush scrub and sink scrub communities in the Tulare Lake Basin of the southern San Joaquin Valley. This species needs soft friable soils to burrow.	**Unlikely**. The Project site and surrounding area lack both saltbush and sink scrub and is highly disturbed due to surrounding agricultural activity. The nearest recorded observation of this species within the vicinity was approximately 9 miles west of the Project site in 1927.
Tricolored blackbird (*Agelaius tricolor*)	CT, CSSC	Nests colonially near fresh water in dense cattails or tules, or in thickets of riparian shrubs. Forages in grassland and cropland. Large colonies are often found foraging in dairy farm feed fields.	**Unlikely.** While the Project site contained fields this species could forage in, no nesting habitat was present. The nearest recorded observation of this species within the vicinity was approximately 4.7 miles southwest of the Project site in 1935.
Tulare grasshopper mouse (*Onychomys torridus tularensis*)	CSSC	Typically inhabits arid shrubland communities in hot, arid grassland and shrubland associations.	**Unlikely.** The Project site is highly disturbed due to surrounding agricultural cultivation. The nearest recorded observation of this species within the vicinity was approximately 11.6 miles southwest of the Project site in 1903.
Vernal pool fairy shrimp	FT	Occupies vernal and seasonal pools, with clear to tea-colored water, in	**Absent.** No vernal pools were

Species	Status*	Habitat	Occurrence within the Site
(*Branchinecta lynchi*)		grass or mud-bottomed swales, and basalt depression pools.	observed within the Project site and the Project site is unsuitable for this species.
Western spadefoot (*Spea hammondii*)	FPT, CSSC	The majority of the time this species is terrestrial and occurs in small mammal burrows and soil cracks, sometimes in the bottom of dried pools. Prefers open areas with sandy or gravelly soils, in a variety of habitats including mixed woodlands, grasslands, coastal sage scrub, chaparral, sandy washes, lowlands, river floodplains, alluvial fans, playas, alkali flats, foothills, and mountains. Vernal or seasonal pools, that hold water for a minimum of three weeks, are necessary for breeding.	**Absent.** The Project site and surrounding areas consisted of densely vegetated ruderal habitat and non-native grassland, surrounding agricultural activity, and the absence of seasonal pools required for this species

*EXPLANATION OF OCCURRENCE DESIGNATIONS AND STATUS CODES

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

STATUS CODES

FE	Federally Endangered	CE	California Endangered
FT	Federally Threatened	CCE	California Endangered (Candidate)
FPT	Federally Threatened (Proposed)	CT	California Threatened
		CFP	California Fully Protected
		CSSC	California Species of Special Concern

CNPS LISTING

1A	Plants presumed extinct in California.	2A	Plants presumed extirpated in California, but more common elsewhere.
1B	Plants rare, threatened, or endangered in		

3 IMPACTS AND MITIGATION

3.1 SIGNIFICANCE CRITERIA

3.1.1 CEQA

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

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

Furthermore, CEQA Guidelines Section 15065(a) states that a Project may trigger the requirement to make a "mandatory finding of significance" if the Project has the potential to:

> "Substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of an endangered, rare or threatened species, or eliminate important examples of the major periods of California history or prehistory."

3.2 RELEVANT GOALS, POLICIES, AND LAWS

3.2.1 TULARE COUNTY ORDINANCE

The Tulare County General Plan contains the following goals and policies related to the Project:

3.2.1.1.1 BIOLOGICAL RESOURCES

Policy ERM-1.1: The County shall ensure the protection of environmentally sensitive wildlife and plant life, including those species designated as rare, threatened, and/or endangered by State and/or Federal government, through compatible land use development.

Policy ERM-1.2: The County shall limit or modify proposed development within areas that contain sensitive habitat for special status species and direct development into less significant habitat areas. Development in natural habitats shall be controlled so as to minimize erosion and maximize beneficial vegetative growth.

Policy ERM-1.16: The County shall cooperate with State and federal wildlife agencies to address linkages between habitat areas.

3.2.1.1.2 WATER QUALITY

Policy WR-2.1: The County shall evaluate all major land use and development plans as to their potential to create surface and groundwater contamination hazards from point and non-point sources. The County shall confer with other appropriate agencies, as necessary, to assure adequate water quality review to prevent soil erosion; direct discharge of potentially harmful substances; ground leaching from storage of raw materials, petroleum products, or wastes; floating debris; and runoff from the site

Policy WR-2.2: The County shall continue to support the State in monitoring and enforcing provisions to control non-point source water pollution contained in the U.S. EPA NPDES program as implemented by the Water Quality Control Board.

Policy WR-2.3: The County shall continue to require the use of feasible BMPs and other mitigation measures designed to protect surface water and groundwater from the adverse effects of construction activities, agricultural operations requiring a County Permit and urban runoff in coordination with the Water Quality Control Board.

Policy WR-2.4: The County shall continue to enforce provisions to control erosion and sediment from construction sites.

3.2.2 THREATENED AND ENDANGERED SPECIES

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

3.2.3 DESIGNATED CRITICAL HABITAT

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

3.2.4 MIGRATORY BIRDS

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

3.2.5 BIRDS OF PREY

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

3.2.6 NESTING BIRDS

In California, protection is afforded to the nests and eggs of all birds. California Fish and Game Code (Section 3503) states that it is "unlawful to take, possess, or needlessly destroy the nest or eggs of any bird except as otherwise provided by this code or any regulation adopted pursuant thereto." Breeding-season disturbance that causes nest abandonment and/or loss of reproductive effort is considered a form of "take" by the CDFW.

3.2.7 WETLANDS AND OTHER "JURISDICTIONAL WATERS"

Aquatic resources, including wetlands, streams, rivers, and lakes, are among the important biological resources that are protected by local, state, and federal laws and regulations. Activities that impact these "jurisdictional waters" may be regulated and require permits which aim to avoid or minimize adverse impacts to "jurisdictional waters" to the greatest extent possible. The definition of a jurisdictional water may vary depending on the regulatory agency, and the limits of jurisdiction for each agency are described below.

The USACE, pursuant to Section 404 of the Clean Water Act (CWA), upholds a set of guidelines to regulate activities that could result in the discharge of pollutants into "waters of the United States" ("WOTUS"). The legal definition of WOTUS has significantly evolved since the passage of the CWA in 1972 as a result of administrative rulings and litigation involving federal jurisdiction over water resources. Thus, the reach and extent of USACE and United States Environmental Protection Agency (EPA) jurisdiction over aquatic features has continually been subject to revision.

The current administrative definition of WOTUS is described in the Biden Administration's 2023 "Conforming Rule." The extent of jurisdiction has been defined in the Code of Federal Regulations (CFR) but is also subject to interpretation by the federal courts. Jurisdictional waters generally include the following categories defined by section 328.3, subdivision (a) of title 33 of the CFR:

1) *Traditional Navigable Waters, the territorial seas, or interstate waters (not including interstate wetlands);*
2) *Impoundments of waters of the United States;*
3) *Tributaries of:*
    a. *Traditional Navigable Waters, territorial seas, or interstate waters (not including interstate wetlands); or*

   b. *Impoundments of water of the United States when the tributaries meet the relatively permanent standard.*

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

Exclusions under the new definition include the following:

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

The Department of the Army, acting through the USACE, regulates the filling or excavation of jurisdictional waters and is authorized to issue permits for activities within WOTUS under the authority of Section 404 of the CWA. The extent of jurisdiction is defined by an “ordinary high-water mark” (OHWM) on opposing channel banks.

The State of California also asserts jurisdiction over drainages, wetlands, and other aquatic features. The limits of State jurisdiction differ from those of the EPA and USACE, often being more inclusive of water resources. The California Department of Fish and Wildlife has jurisdiction over the bed and bank of rivers, natural drainages, streams, and lakes and regulates alteration to these features pursuant to the provisions of Section 1601 and 1602 of the California Fish and Game Code. Activities to alter these features would require a Lake or Streambed Alteration Agreement from CDFW, which could include mitigation measures for aquatic and biological resources that could be affected by Project activities.

The State Water Resources Control Board, under the Porter-Cologne Water Quality Control Act of 1969, holds regulatory authority over activities affecting water quality of all surface water and groundwater in

California, collectively known as "waters of the state." Discharges into waters of the state that are also WOTUS require a CWA Section 401 Water Quality Certification from the appropriate regional office as a prerequisite to obtaining certain federal permits, such as a CWA Section 404 permit. Discharges into all Waters of the State, even those that are not also WOTUS, require waste discharge requirements (WDRs), or waivers of WDRs, from the RWQCB. The RWQCB also administers the Construction Storm Water Program and the federal National Pollution Discharge Elimination System (NPDES) program. Projects that disturb one acre or more of soil must obtain a Construction General Permit under the Construction Storm Water Program. A prerequisite for this permit is the development of a Storm Water Pollution Prevention Plan (SWPPP) by a certified Qualified SWPPP Developer. Projects that discharge wastewater, storm water, or other pollutants into a WOTUS may require an NPDES permit.

3.3 POTENTIALLY SIGNIFICANT PROJECT-RELATED IMPACTS AND MITIGATION

Biological resources protected by California Fish and Game Code, CDFW, USFWS, CEQA, or NEPA that have the potential to be impacted by Project activities include migratory nesting birds. Corresponding mitigation measures can be found below.

3.3.1 GENERAL PROJECT-RELATED IMPACTS

The Project has the potential to impact wildlife species and sensitive biological resources such as bird nests that occur onsite. Impacts to these resources would be a violation of State and federal laws or considered a potentially significant impact under CEQA and NEPA. Implementation of the following measures will help reduce potential impacts to these resources to a less than significant level under CEQA and NEPA and will help with complying with state and federal laws protecting these resources:

Mitigation Measure BIO-1a (*BMPs*): The Project proponent will require that all workers employ the following best management practices (BMPs) in order to avoid and minimize potential impacts to special status species:

- Vehicles will observe a 15-mph speed limit while on unpaved access routes.
- All open trenches, holes, sumps, and other excavations greater than 6-inches with sidewalls steeper than a 1:1 (45 degree) slope will have an escape ramp of earth or a non-slip material with a less than 1:1 slope or these will be covered with barrier material such that animals are unable to dig or squeeze under the barrier and become entrapped.
- Workers will inspect areas beneath parked vehicles, equipment, and materials prior to mobilization. If special status species are detected, the individual will either be allowed to leave of its own volition or will be captured by the qualified biologist (must possess appropriate collecting/handling permits) and relocated out of harm's way to the nearest suitable habitat beyond the influence of the Project work area. "Take" of a state or federal special status (rare, California Species of Special Concern, threatened, or endangered) species is prohibited without the necessary federal or State take permit(s).

3.3.2 PROJECT-RELATED MORTALITY AND/OR NEST ABANDONMENT OF MIGRATORY BIRDS, RAPTORS, AND SPECIAL STATUS BIRDS

The site and adjacent areas contain suitable nesting and foraging habitat for a variety of protected bird species, such as migratory birds and raptors. It is anticipated that during the nesting bird season, protected birds could nest on the ground or in shrubs and trees within, and adjacent to, the site and forage within the site. Protected birds located within or adjacent to the site during construction have the potential to be injured or killed by Project-related activities. In addition to the direct "take" of protected birds within the site and adjacent areas, these birds nesting in these areas could be disturbed by Project-related activities resulting in nest abandonment. Projects that adversely affect the nesting success of protected birds or result in the mortality of these birds would be a violation of state and federal laws and considered a potentially significant impact under CEQA and NEPA.

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

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

> Mitigation Measure BIO-2a (*Avoidance*): The Project's construction activities will occur, if feasible, between September 1 and January 31 (outside of the nesting bird season) to avoid impacts to nesting birds.

> Mitigation Measure BIO-2b (*Pre-construction Surveys*): If activities must occur within the nesting bird season (February 1 to August 31), a qualified biologist (someone able to identify these species) will conduct a pre-construction survey for active nests within seven (7) calendar days prior to the start of construction. It will be completed within the Project site, and up to 50 feet outside of the Project site for nesting migratory birds and up to 450 feet outside of the Project site for nesting raptors. Raptor nests are considered "active" upon the nest-building stage. If no active nests are observed, no further mitigation is required.

> Mitigation Measure BIO-2c (*Avoidance Buffers*): On discovery of any active nests or breeding colonies near work areas, a qualified biologist will determine appropriate avoidance buffer distances based on applicable CDFW and/or USFWS guidelines, the biology of the species, conditions of the nest(s), and the level of Project disturbance.

3.4 SECTION 7 DETERMINATIONS

In addition to the occurrence analysis performed in Table 2 and Table 3 of this document, Table 4 summarizes Project effect determinations for federally-listed species found on the CNDDB list generated on March 14, 2025, and the USFWS IPaC list generated on March 14, 2025 (see Appendix B and Appendix C, respectively), in accordance with Section 7 of the Endangered Species Act.

Table 4: Section 7 Determinations

Species	Determination	Rationale for Determination
Blunt-nosed leopard lizard (*Gambelia sila*)	No effect	**Habitat absent**. Habitats for hibernation and reproduction required by this species are absent from the Project site.
California jewelflower (*Caulanthus californicus*)	No effect	**Habitat absent**. Habitats and soils required by this species are absent from the Project site.
Conservancy fairy shrimp *(Branchinecta conservatio)*	No effect	**Habitat absent.** Project site lacked playa pools for this species.
Kern mallow (*Eremalche parryi* ssp. *kernensis*)	No effect	**Habitat absent**. Habitats and soils required by this species are absent from the Project site.
Northwestern pond turtle (*Actinemys marmorata*)	No effect	**Habitat absent**. Project site lacked adequate upland and aquatic habitat for this species.

Species	Determination	Rationale for Determination
San Joaquin adobe sunburst *(Pseudobahia peirsonii)*	No effect	**Habitat absent**. Habitats and soils required by this species are absent from the Project site.
San Joaquin kit fox (*Vulpes macrotis mutica*)	No effect	**Habitat absent.** Project site lacked suitable habitat for this species. No burrows or signs of this species were observed during the field survey.
San Joaquin woollythreads (*Monolopia congdonii*)	No effect	**Habitat absent.** Project site lacked the vernal pools and sandy soils to sustain this species.
Springville clarkia (*Clarkia springvillensis*)	No effect	**Habitat absent**. Habitats and soils required by this species are absent from the Project site.
Tipton kangaroo rat (*Dipodomys nitratoides nitratoides*)	No effect	**Habitat absent**. Habitats required by this species are absent from the Project site. No burrows or signs of this species were observed during the field survey.
Vernal pool fairy shrimp (*Branchinecta lynchi*)	No effect	**Habitat absent**. Vernal pool habitat was absent within the Project site and surrounding lands.

3.5 LESS THAN SIGNIFICANT PROJECT-RELATED IMPACTS

3.5.1 PROJECT-RELATED IMPACTS TO SPECIAL STATUS PLANT SPECIES ABSENT FROM, OR UNLIKELY TO OCCUR ON, THE PROJECT SITE

Of the 16 regionally occurring special status plant species, all 16 are considered absent from or unlikely to occur within the Project site due to past or ongoing disturbance and/or the absence of suitable habitat.

Since it is unlikely that these species would occur onsite, implementation of the Project should have no impact on all 16 special status species through construction mortality, disturbance, or loss of habitat. Mitigation measures are not warranted.

3.5.2 PROJECT-RELATED IMPACTS TO SPECIAL STATUS ANIMAL SPECIES ABSENT FROM, OR UNLIKELY TO OCCUR ON, THE PROJECT SITE

Of the 19 regionally occurring special status animal species, all 19 are considered absent from or unlikely to occur within the Project site due to past or ongoing disturbance and/or the absence of suitable habitat. These species include: American badger, Bakersfield legless lizard, blunt-nosed leopard lizard, Buena Vista Lake ornate shrew, burrowing owl, coast horned lizard, Conservancy fairy shrimp, Crotch bumble bee, loggerhead shrike, Northern California legless lizard, Northwestern pond turtle, San Joaquin coachwhip, San Joaquin kit fox, Swainson's hawk, Tipton kangaroo rat, tricolored blackbird, Tulare grasshopper mouse, vernal pool fairy shrimp, and western spadefoot.

Since it is unlikely that these species would occur onsite, implementation of the Project should have no impact on these 19 special status species through construction mortality, disturbance, or loss of habitat. Mitigation measures are not warranted.

3.5.3 PROJECT-RELATED IMPACTS TO RIPARIAN HABITAT AND NATURAL COMMUNITIES OF SPECIAL CONCERN

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

3.5.4 PROJECT-RELATED IMPACTS TO REGULATED WATERS, WETLANDS, AND WATER QUALITY

Typical wetlands, vernal pools, and other waters were absent from the Project site. There are no designated wild and scenic rivers within the Project site; therefore, the Project would not result in direct impacts to wild and scenic rivers. Mitigation measures are not warranted.

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

3.5.5 PROJECT-RELATED IMPACTS TO WILDLIFE MOVEMENT CORRIDORS AND NATIVE WILDLIFE NURSERY SITES

Most of the Project site does not contain features that would be likely to function as wildlife movement corridors. Casa Blanca Ditch could be potentially used as a wildlife movement corridor, but disturbance to this canal would be temporary in nature and would not disturb wildlife movement. Furthermore, the Project is located in an area regularly disturbed by humans which would discourage dispersal and migration.

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

Therefore, the Project would have no impact on wildlife movement corridors or other native wildlife nursery sites, and no additional mitigation measures are warranted.

3.5.6 PROJECT-RELATED IMPACTS TO CRITICAL HABITAT

Designated critical habitat is absent from the Project site and surrounding lands. Therefore, there would be no impact to critical habitat, and mitigation measures are not warranted.

3.5.7 LOCAL POLICIES OR HABITAT CONSERVATION PLANS

The Project appears to be consistent with the goals and policies of the Tulare County General Plan. There are no known HCPs or NCCPs in the Project vicinity. Mitigation measures are not warranted.

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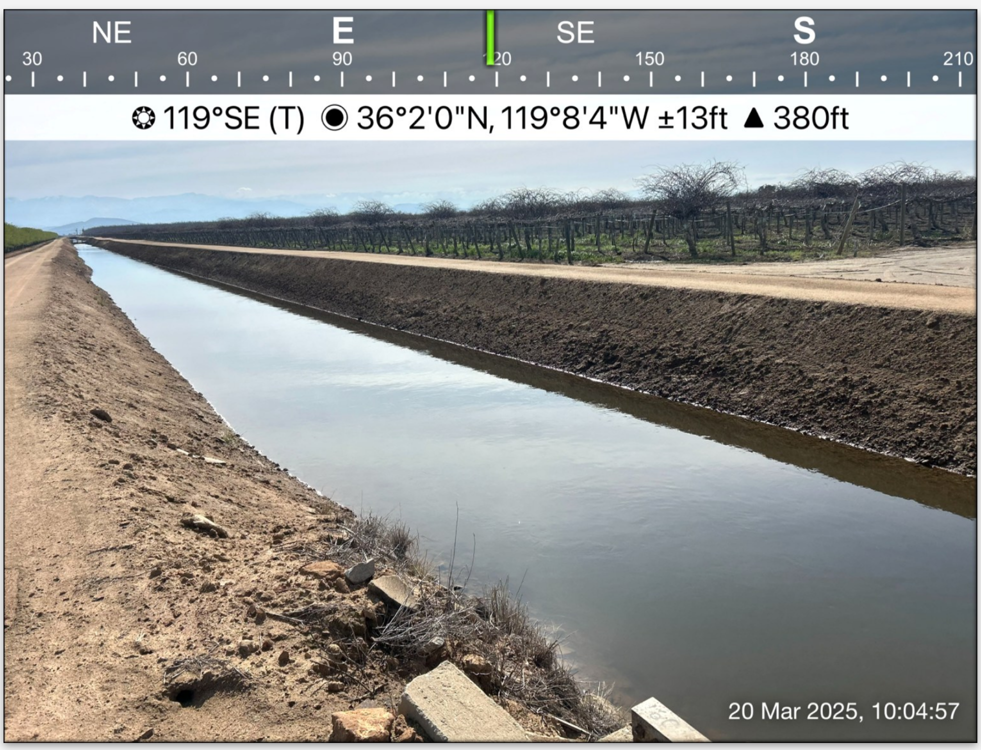
APPENDIX A: REPRESENTATIVE PHOTOS OF THE PROJECT SITE

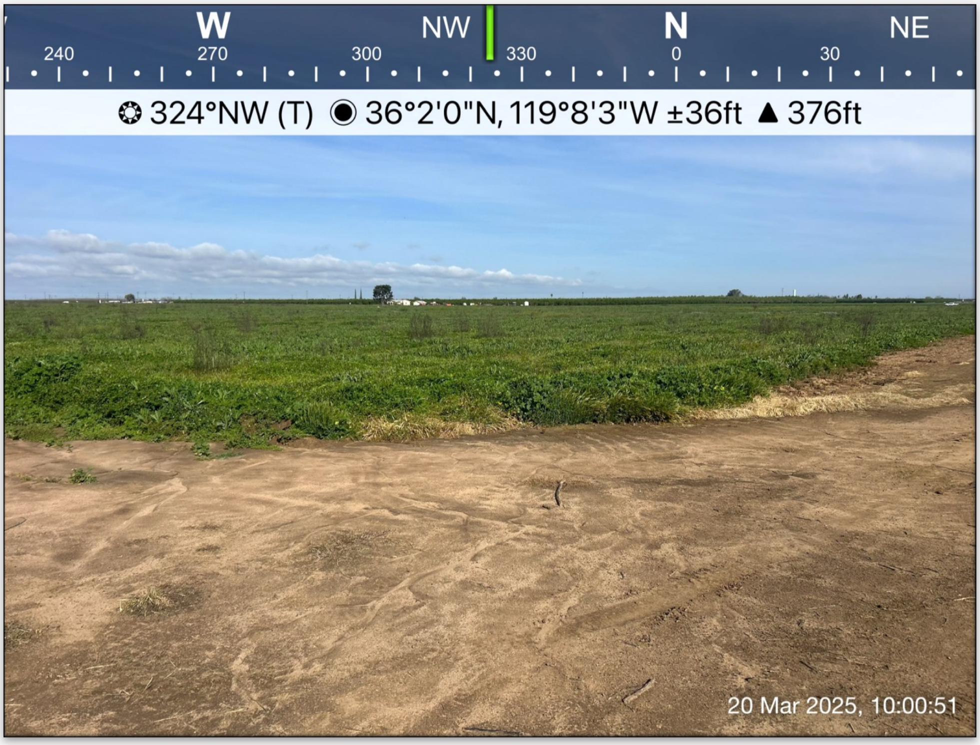
Photograph 1

Eastern-facing view from the project site center showing the non-native grassland habitat and bordering orchards.



Photograph 2

Casa Blanca Ditch in the southeastern corner of the project site.



Photograph 3

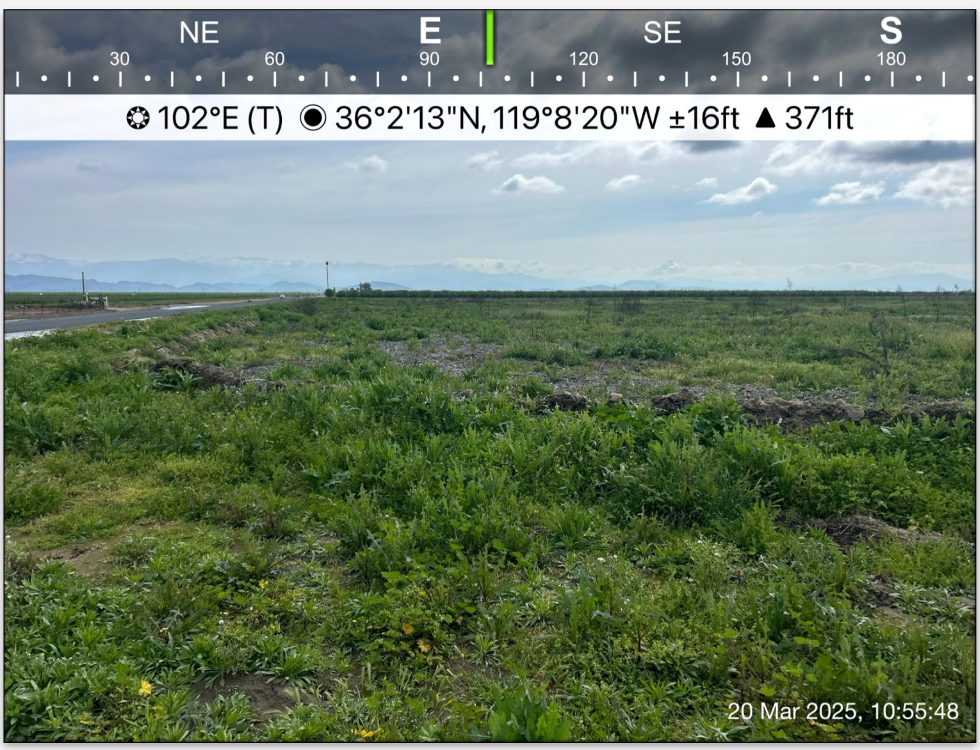
Overview of the project site's non-native grassland and ruderal habitat from the southeastern corner.

Photograph 4

Overview of the project site from the southwestern corner.

Photograph 5

Overview of the project site's non-native grassland habitat and Avenue 136 from the northeastern corner.



Photograph 6

Overview of the project site 'snon-native grassland habitat and Avenue 136 from the northwestern corner.

Photograph 7

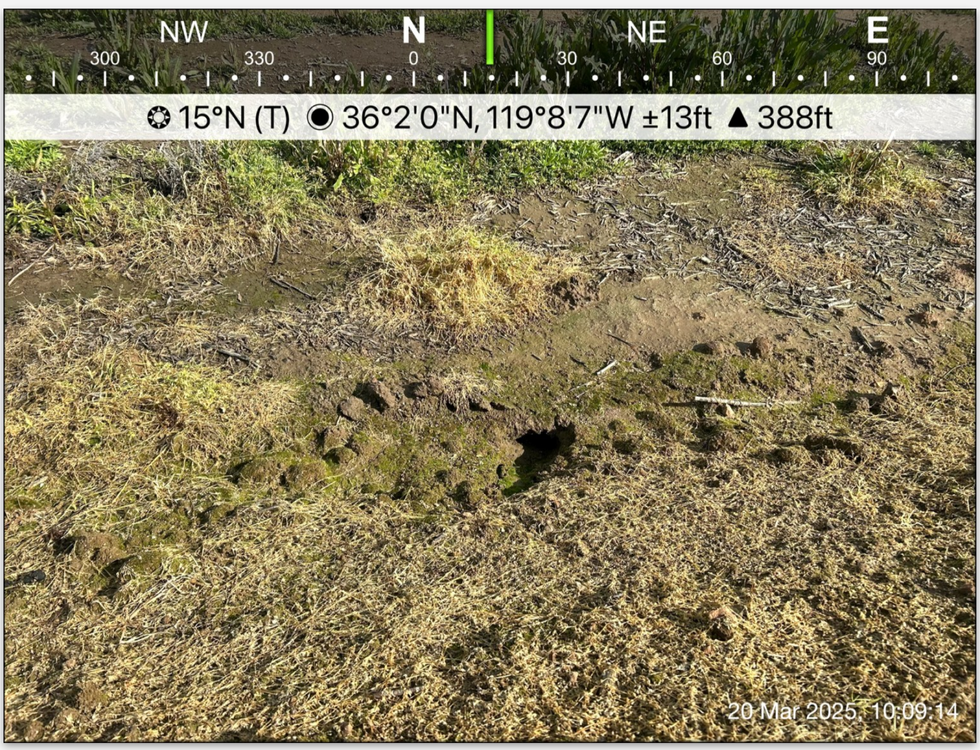
Surrounding land to the southwest of the project site, Casa Blanca Ditch, and unpaved access road.

Photograph 8

Canal diversion structure along Casa Blanca Ditch.

Photograph 9

One of the areas within the non-native grassland habitat that was less covered by living vegetation but by decaying plant matter.



Photograph 10

The singular burrow observed was locate din the southeastern section of the project site north of the ditch.

APPENDIX B: CNDDB 9-QUAD SPECIES LIST

Selected Elements by Common Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Woodville (3611912) OR Tulare (3611923) OR Cairns Corner (3611922) OR Lindsay (3611921) OR Tipton (3611913) OR Porterville (3611911) OR Pixley (3511983) OR Sausalito School (3511982) OR Ducor (3511981))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
alkali-sink goldfields *Lasthenia chrysantha*	PDAST5L030	None	None	G2	S2	1B.1
American badger *Taxidea taxus*	AMAJF04010	None	None	G5	S3	SSC
An andrenid bee *Andrena macswaini*	IIHYM35130	None	None	G2	S2	
Bakersfield legless lizard *Anniella grinnelli*	ARACC01050	None	None	G2G3	S2S3	SSC
blunt-nosed leopard lizard *Gambelia sila*	ARACF07010	Endangered	Endangered	G1	S2	FP
brittlescale *Atriplex depressa*	PDCHE042L0	None	None	G2	S2	1B.2
burrowing owl *Athene cunicularia*	ABNSB10010	None	Candidate Endangered	G4	S2	SSC
calico monkeyflower *Diplacus pictus*	PDSCR1B240	None	None	G2	S2	1B.2
California alkali grass *Puccinellia simplex*	PMPOA53110	None	None	G2	S2	1B.2
California jewelflower *Caulanthus californicus*	PDBRA31010	Endangered	Endangered	G1	S1	1B.1
coast horned lizard *Phrynosoma blainvillii*	ARACF12100	None	None	G4	S4	SSC
Crotch's bumble bee *Bombus crotchii*	IIHYM24480	None	Candidate Endangered	G2	S2	
Earlimart orache *Atriplex cordulata var. erecticaulis*	PDCHE042V0	None	None	G3T1	S1	1B.2
hoary bat *Lasiurus cinereus*	AMACC05032	None	None	G3G4	S4	
Hopping's blister beetle *Lytta hoppingi*	IICOL4C010	None	None	G1G2	S2	
Kern mallow *Eremalche parryi ssp. kernensis*	PDMAL0C031	Endangered	None	G3G4T3	S3	1B.2
lesser saltscale *Atriplex minuscula*	PDCHE042M0	None	None	G2	S2	1B.1
loggerhead shrike *Lanius ludovicianus*	ABPBR01030	None	None	G4	S4	SSC
Lost Hills crownscale *Atriplex coronata var. vallicola*	PDCHE04371	None	None	G4T3	S3	1B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
molestan blister beetle *Lytta molesta*	IICOL4C030	None	None	G2	S2	
Morrison's blister beetle *Lytta morrisoni*	IICOL4C040	None	None	G1G2	S2	
Northern California legless lizard *Anniella pulchra*	ARACC01020	None	None	G3	S2S3	SSC
Northern Claypan Vernal Pool *Northern Claypan Vernal Pool*	CTT44120CA	None	None	G1	S1.1	
recurved larkspur *Delphinium recurvatum*	PDRAN0B1J0	None	None	G2?	S2	1B.2
San Joaquin adobe sunburst *Pseudobahia peirsonii*	PDAST7P030	Threatened	Endangered	G1	S1	1B.1
San Joaquin coachwhip *Masticophis flagellum ruddocki*	ARADB21021	None	None	G5T2T3	S3	SSC
San Joaquin kit fox *Vulpes macrotis mutica*	AMAJA03041	Endangered	Threatened	G4T2	S3	
San Joaquin pocket mouse *Perognathus inornatus*	AMAFD01060	None	None	G2G3	S2S3	
San Joaquin tiger beetle *Cicindela tranquebarica joaquinensis*	IICOL0220E	None	None	G5T1	S1	
San Joaquin Valley giant flower-loving fly *Rhaphiomidas trochilus*	IIDIP05010	None	None	G1	S1	
San Joaquin woollythreads *Monolopia congdonii*	PDASTA8010	Endangered	None	G2	S2	1B.2
Springville clarkia *Clarkia springvillensis*	PDONA05120	Threatened	Endangered	G2	S2	1B.2
striped adobe-lily *Fritillaria striata*	PMLIL0V0K0	None	Threatened	G1	S1	1B.1
subtle orache *Atriplex subtilis*	PDCHE042T0	None	None	G1	S1	1B.2
Swainson's hawk *Buteo swainsoni*	ABNKC19070	None	Threatened	G5	S4	
Tipton kangaroo rat *Dipodomys nitratoides nitratoides*	AMAFD03152	Endangered	Endangered	G2T1T2	S2	
tricolored blackbird *Agelaius tricolor*	ABPBXB0020	None	Threatened	G1G2	S2	SSC
Tulare grasshopper mouse *Onychomys torridus tularensis*	AMAFF06021	None	None	G5T1T2	S1S2	SSC
vernal pool fairy shrimp *Branchinecta lynchi*	ICBRA03030	Threatened	None	G3	S3	
vernal pool smallscale *Atriplex persistens*	PDCHE042P0	None	None	G2	S2	1B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
western spadefoot *Spea hammondii*	AAABF02020	Proposed Threatened	None	G2G3	S3S4	SSC

Record Count: 41

APPENDIX C: IPAC SPECIES LIST

United States Department of the Interior

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

In Reply Refer To: 03/14/2025 21:38:45 UTC
Project Code: 2025-0069546
Project Name: Schott Basin CEQA

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

To Whom It May Concern:

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

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

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

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

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

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

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

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

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

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

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

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

This species list is provided by:

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

PROJECT SUMMARY

Project Code: 2025-0069546
Project Name: Schott Basin CEQA
Project Type: Restoration / Enhancement - Agricultural
Project Description: We understand that the Lower Tule River Irrigation District (LTRID or District) has successfully secured grant funding to develop an approximately 40-acre recharge facility known as the Schott Basin (Project) located approximately 1-mile south of the community of Poplar. Implementation of the Project will help support meeting the objectives of the Sustainable Groundwater Management Act (SGMA) in the Tule Subbasin. The focus of this proposal is for the legal description for property transfer into the District's name, environmental compliance related to the California Environmental Quality Act (CEQA), design, and construction management. The new 40-acre recharge facility will include a new turnout connection from the District's existing ditch on the southern end of the property. It is understood that the District has received grant funding through Prop. 68 grant funding. The completion deadline associated with the grant is December 31, 2025.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@36.0351623,-119.13671784174414,14z

Counties: Tulare County, California

ENDANGERED SPECIES ACT SPECIES

There is a total of 9 threatened, endangered, or candidate species on this species list.

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

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

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

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

MAMMALS

NAME	STATUS
Buena Vista Lake Ornate Shrew *Sorex ornatus relictus* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1610	Endangered
San Joaquin Kit Fox *Vulpes macrotis mutica* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2873	Endangered
Tipton Kangaroo Rat *Dipodomys nitratoides nitratoides* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7247	Endangered

BIRDS

NAME	STATUS
California Condor *Gymnogyps californianus* Population: Wherever found, except where listed as an experimental population There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8193	Endangered

REPTILES

NAME	STATUS
Blunt-nosed Leopard Lizard *Gambelia silus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/625	Endangered
Northwestern Pond Turtle *Actinemys marmorata* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1111	Proposed Threatened

AMPHIBIANS

NAME	STATUS
Western Spadefoot *Spea hammondii* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5425	Proposed Threatened

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9743	Proposed Threatened

CRUSTACEANS

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

CRITICAL HABITATS

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

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

IPAC USER CONTACT INFORMATION

Agency:	Private Entity
Name:	Olivia Arredondo
Address:	455 W. Fir Ave.
City:	Clovis
State:	CA
Zip:	93611
Email	oarredondo@ppeng.com
Phone:	8312970074

APPENDIX D: NRCS WEB SOIL SURVEY REPORT

SSURGO 2.3.2
Table Column Descriptions

Table Physical Name: **chaashto**

Table Label: Horizon AASHTO

Column Physical Name: **aashtocl** Column Label: AASHTO

A rating based on a system that classifies soils according to those properties that affect roadway construction and maintenance. Soils are classified into seven basic groups plus eight subgroups, for a total of fifteen for mineral soils. Another class for organic soils is used. The groups are based on determinations of particle-size distribution, liquid limit, and plasticity index. The group classification, including group index, is useful in determining the relative quality of the soil material for use in earthwork structures, particularly embankments, subgrades, subbases, and bases. (American Association fo State Highway and Transportation Officials)

Column Physical Name: **rvindicator** Column Label: RV?

A yes/no field that indicates if a value or row (set of values) is representative for the component.

Column Physical Name: **chkey** Column Label: Chorizon Key

A non-connotative string of characters used to uniquely identify a record in the Horizon table.

Column Physical Name: **chaashtokey** Column Label: Chorizon AASHTO Key

A non-connotative string of characters used to uniquely identify a record in the Horizon AASHTO table.

Table Physical Name: **chconsistence**

Table Label: Horizon Consistence

Column Physical Name: **rupresblkmst** Column Label: Rupture Moist

The rupture resistance of a block-shaped specimen of 25 to 30 mm size and moist water state. (SSM)

Column Physical Name: **rupresblkdry** Column Label: Rupture Dry

The rupture resistance of a block-shaped specimen of 25 to 30 mm size and dry water state. (SSM)

Column Physical Name: **rupresblkcem** Column Label: Rupture Cement

The rupture resistance of a block-like specimen of 25 to 30 mm size that has been air dried and then submerged in water. (SSM)

Column Physical Name: **rupresplate** Column Label: Rupture Plate

The rupture resistance of an air dry plate-shaped specimen of specified size. (SSM)

Column Physical Name: **mannerfailure** Column Label: Manner of Failure

The manner in which soil specimens fail under increasing force. (SSM)

Column Physical Name: **stickiness** Column Label: Stickiness

The maximum capacity of thoroughly puddled soil to adhere to other objects.

Column Physical Name: **plasticity** Column Label: Plasticity

The degree to which a puddled, wet soil mass is permanently deformed without rupturing by a slow continuous application of force in any direction. (SSM)

Column Physical Name: **rvindicator** Column Label: RV?

A yes/no field that indicates if a value or row (set of values) is representative for the component.

Column Physical Name: **chkey** Column Label: Chorizon Key

A non-connotative string of characters used to uniquely identify a record in the Horizon table.

Column Physical Name: **chconsistkey** Column Label: Chorizon Consistence Key

A non-connotative string of characters used to uniquely identify a record in the Horizon Consistence table.

Table Physical Name: **chdesgnsuffix**

Table Label: Horizon Designation Suffix

Column Physical Name: **desgnsuffix** Column Label: Suffix

One of the four kinds of symbols, that when concatenated, are used to distinguish different kinds of layers in soils. Letter suffixes are used to designate subordinate distinctions within master horizons, and layers using lowercase letters. (SSM)

Column Physical Name: **chkey** Column Label: Chorizon Key

A non-connotative string of characters used to uniquely identify a record in the Horizon table.

Column Physical Name: **chdesgnsfxkey** Column Label: Chorizon Designation Suffix Key

A non-connotative string of characters used to uniquely identify a record in the Horizon Designation Suffix table.

Table Physical Name: **chfrags**
Table Label: Horizon Fragments

Column Group Label: Vol %

Column Physical Name:	**fragvol_l**	Column Label:	Low
Column Physical Name:	**fragvol_r**	Column Label:	RV
Column Physical Name:	**fragvol_h**	Column Label:	High

The volume percentage of the horizon occupied by the 2 mm or larger fraction (20 mm or larger for wood fragments), on a whole soil base.

Column Physical Name: **fragkind** Column Label: Kind

The lithology/composition of the 2 mm or larger fraction of the soil (20 mm or larger for wood fragments).

Column Group Label: Size

Column Physical Name:	**fragsize_l**	Column Label:	Low
Column Physical Name:	**fragsize_r**	Column Label:	RV
Column Physical Name:	**fragsize_h**	Column Label:	High

Size based on the multiaxial dimensions of the fragment fraction.

Column Physical Name: **fragshp** Column Label: Shape

A description of the overall shape of the fragment.

Column Physical Name: **fraground** Column Label: Roundness

An expression of the sharpness of edges and corners of fragments. (Sedimentary Rocks, Pettijohn, 1957)

Column Physical Name: **fraghard** Column Label: Hardness

The hardness of a fragment.

Column Physical Name: **chkey** Column Label: Chorizon Key

A non-connotative string of characters used to uniquely identify a record in the Horizon table.

Column Physical Name: **chfragskey** Column Label: Chorizon Fragments Key

A non-connotative string of characters used to uniquely identify a record in the Horizon Fragments table.

Table Physical Name: **chorizon**

Table Label: Horizon

Column Physical Name: **hzname** Column Label: Designation

The concatenated string of four kinds of symbols (five data elements) used to distinguish different kinds of layers in the soil. (SSM)

Column Physical Name: **desgndisc** Column Label: Disc

An Arabic numeral used to indicate a significant change in particle-size distribution or mineralogy that indicates a difference in the material from which the horizon(s) formed and/or a significant difference in age, unless that difference in age is indicated by the suffix "b". (SSM) This numeral is one of four kinds of symbols, that when concatenated, are used to distinguish different kinds of layers in the soil.

Column Physical Name: **desgnmaster** Column Label: Master

One of four kinds of symbols, that when concatenated, are used to distinguish different kinds of layers in soils. Master horizons and layers are the base symbols to which other characters are added to complete the designations. Capital letters, virgules (/), and ampersands (&) are used. (SSM)

Column Physical Name: **desgnmasterprime** Column Label: Prime

A character used to indicate that this horizon has an identical horizon designation as some overlying horizon. The two horizons in question are separated by at least one other horizon.

Column Physical Name: **desgnvert** Column Label: Sub

One of the four kinds of symbols, when concatenated, are used to distinguish different kinds of layers in soils. Vertical subdivisions are used to subdivide a horizon or layer designated by a single letter or combination of letters.

Column Group Label: Top Depth

Column Physical Name: **hzdept_l** Column Label: Low
Column Physical Name: **hzdept_r** Column Label: RV
Column Physical Name: **hzdept_h** Column Label: High

The distance from the top of the soil to the upper boundary of the soil horizon.

Column Group Label: Bottom Depth

Column Physical Name: **hzdepb_l** Column Label: Low
Column Physical Name: **hzdepb_r** Column Label: RV
Column Physical Name: **hzdepb_h** Column Label: High

The distance from the top of the soil to the base of the soil horizon.

Column Group Label: Thickness

Column Physical Name: **hzthk_l** Column Label: Low
Column Physical Name: **hzthk_r** Column Label: RV
Column Physical Name: **hzthk_h** Column Label: High

A measurement from the top to bottom of a soil horizon throughout its areal extent.

Column Group Label: Rock >10

Column Physical Name: **fraggt10_l** Column Label: Low
Column Physical Name: **fraggt10_r** Column Label: RV
Column Physical Name: **fraggt10_h** Column Label: High

The percent by weight of the horizon occupied by rock fragments greater than 10 inches in size.

Table Physical Name: **chorizon**

Table Label: Horizon

		Column Group Label: Rock 3-10
Column Physical Name:	**frag3to10_l**	Column Label: Low
Column Physical Name:	**frag3to10_r**	Column Label: RV
Column Physical Name:	**frag3to10_h**	Column Label: High

The percent by weight of the horizon occupied by rock fragments 3 to 10 inches in size.

		Column Group Label: #4
Column Physical Name:	**sieveno4_l**	Column Label: Low
Column Physical Name:	**sieveno4_r**	Column Label: RV
Column Physical Name:	**sieveno4_h**	Column Label: High

Soil fraction passing a number 4 sieve (4.70mm square opening) as a weight percentage of the less than 3 inch (76.4mm) fraction.

		Column Group Label: #10
Column Physical Name:	**sieveno10_l**	Column Label: Low
Column Physical Name:	**sieveno10_r**	Column Label: RV
Column Physical Name:	**sieveno10_h**	Column Label: High

Soil fraction passing a number 10 sieve (2.00mm square opening) as a weight percentage of the less than 3 inch (76.4mm) fraction.

		Column Group Label: #40
Column Physical Name:	**sieveno40_l**	Column Label: Low
Column Physical Name:	**sieveno40_r**	Column Label: RV
Column Physical Name:	**sieveno40_h**	Column Label: High

Soil fraction passing a number 40 sieve (0.42mm square opening) as a weight percentage of the less than 3 inch (76.4mm) fraction.

		Column Group Label: #200
Column Physical Name:	**sieveno200_l**	Column Label: Low
Column Physical Name:	**sieveno200_r**	Column Label: RV
Column Physical Name:	**sieveno200_h**	Column Label: High

Soil fraction passing a number 200 sieve (0.074mm square opening) as a weight percentage of the less than 3 inch (76.4mm) fraction.

		Column Group Label: Total Sand
Column Physical Name:	**sandtotal_l**	Column Label: Low
Column Physical Name:	**sandtotal_r**	Column Label: RV
Column Physical Name:	**sandtotal_h**	Column Label: High

Mineral particles 0.05mm to 2.0mm in equivalent diameter as a weight percentage of the less than 2 mm fraction.

Column Physical Name		Column Group Label: vcos
Column Physical Name:	**sandvc_l**	Column Label: Low
Column Physical Name:	**sandvc_r**	Column Label: RV
Column Physical Name:	**sandvc_h**	Column Label: High

Mineral particles 1.0mm to 2.0mm in equivalent diameter as a weight percentage of the less than 2 mm fraction.

Table Physical Name: **chorizon**

Table Label: Horizon

Column Physical Name	Column Group Label	Column Label
	cos	
sandco_l		Low
sandco_r		RV
sandco_h		High

Mineral particles 0.5mm to 1.0mm in equivalent diameter as a weight percentage of the less than 2 mm fraction.

Column Physical Name	Column Group Label	Column Label
	ms	
sandmed_l		Low
sandmed_r		RV
sandmed_h		High

Mineral particles 0.25mm to 0.5mm in equivalent diameter as a weight percentage of the less than 2 mm fraction.

Column Physical Name	Column Group Label	Column Label
	fs	
sandfine_l		Low
sandfine_r		RV
sandfine_h		High

Mineral particles 0.10 to 0.25mm in equivalent diameter as a weight percentage of the less than 2 mm fraction.

Column Physical Name	Column Group Label	Column Label
	vfs	
sandvf_l		Low
sandvf_r		RV
sandvf_h		High

Mineral particles 0.05 to 0.10mm in equivalent diameter as a weight percentage of the less than 2 mm fraction.

Column Physical Name	Column Group Label	Column Label
	Total Silt	
silttotal_l		Low
silttotal_r		RV
silttotal_h		High

Mineral particles 0.002 to 0.05mm in equivalent diameter as a weight percentage of the less than 2.0mm fraction.

Column Physical Name	Column Group Label	Column Label
	Coarse Silt	
siltco_l		Low
siltco_r		RV
siltco_h		High

Mineral particles ranging in size from 0.02mm to 0.05mm in equivalent diameter as a weight percentage of the less than 2.0mm fraction.

Column Physical Name	Column Group Label	Column Label
	Fine Silt	
siltfine_l		Low
siltfine_r		RV
siltfine_h		High

Mineral particles ranging in size from 0.002 to 0.02mm in equivalent diameter as a weight percentage of the less than 2.0mm fraction.

Table Physical Name: **chorizon**
Table Label: Horizon

Column Group Label: Total Clay

Column Physical Name		Column Label
Column Physical Name:	**claytotal_l**	Column Label: Low
Column Physical Name:	**claytotal_r**	Column Label: RV
Column Physical Name:	**claytotal_h**	Column Label: High

Mineral particles less than 0.002mm in equivalent diameter as a weight percentage of the less than 2.0mm fraction.

Column Group Label: CaCO3 Clay

Column Physical Name		Column Label
Column Physical Name:	**claysizedcarb_l**	Column Label: Low
Column Physical Name:	**claysizedcarb_r**	Column Label: RV
Column Physical Name:	**claysizedcarb_h**	Column Label: High

Carbonate particles less than 0.002mm in equivalent diameter as a weight percentage of the less than 2.0mm fraction.

Column Group Label: OM

Column Physical Name		Column Label
Column Physical Name:	**om_l**	Column Label: Low
Column Physical Name:	**om_r**	Column Label: RV
Column Physical Name:	**om_h**	Column Label: High

The amount by weight of decomposed plant and animal residue expressed as a weight percentage of the less than 2 mm soil material.

Column Group Label: Db 0.1 bar H2O

Column Physical Name		Column Label
Column Physical Name:	**dbtenthbar_l**	Column Label: Low
Column Physical Name:	**dbtenthbar_r**	Column Label: RV
Column Physical Name:	**dbtenthbar_h**	Column Label: High

The oven dried weight of the less than 2 mm soil material per unit volume of soil at a water tension of 1/10 bar.

Column Group Label: Db 0.33 bar H2O

Column Physical Name		Column Label
Column Physical Name:	**dbthirdbar_l**	Column Label: Low
Column Physical Name:	**dbthirdbar_r**	Column Label: RV
Column Physical Name:	**dbthirdbar_h**	Column Label: High

The oven dry weight of the less than 2 mm soil material per unit volume of soil at a water tension of 1/3 bar.

Column Group Label: Db 15 bar H2O

Column Physical Name		Column Label
Column Physical Name:	**dbfifteenbar_l**	Column Label: Low
Column Physical Name:	**dbfifteenbar_r**	Column Label: RV
Column Physical Name:	**dbfifteenbar_h**	Column Label: High

The oven dry weight of the less than 2 mm soil material per unit volume of soil at a water tension of 15 bar.

Column Group Label: Db oven dry

Column Physical Name		Column Label
Column Physical Name:	**dbovendry_l**	Column Label: Low
Column Physical Name:	**dbovendry_r**	Column Label: RV
Column Physical Name:	**dbovendry_h**	Column Label: High

The oven dry weight of the less than 2 mm soil material per unit volume of soil exclusive of the desication cracks, measured on a coated clod.

Column Physical Name: **partdensity** Column Label: Dp

Mass per unit of volume (not including pore space) of the solid soil particle either mineral or organic. Also known as specific gravity.

Table Physical Name: **chorizon**

Table Label: Horizon

		Column Group Label:	Ksat
Column Physical Name:	**ksat_l**	Column Label:	Low
Column Physical Name:	**ksat_r**	Column Label:	RV
Column Physical Name:	**ksat_h**	Column Label:	High

The amount of water that would move vertically through a unit area of saturated soil in unit time under unit hydraulic gradient.

		Column Group Label:	AWC
Column Physical Name:	**awc_l**	Column Label:	Low
Column Physical Name:	**awc_r**	Column Label:	RV
Column Physical Name:	**awc_h**	Column Label:	High

The amount of water that an increment of soil depth, inclusive of fragments, can store that is available to plants. AWC is expressed as a volume fraction, and is commonly estimated as the difference between the water contents at 1/10 or 1/3 bar (field capacity) and 15 bars (permanent wilting point) tension and adjusted for salinity, and fragments.

		Column Group Label:	0.1 bar H2O
Column Physical Name:	**wtenthbar_l**	Column Label:	Low
Column Physical Name:	**wtenthbar_r**	Column Label:	RV
Column Physical Name:	**wtenthbar_h**	Column Label:	High

The volumetric content of soil water retained at a tension of 1/10 bar (10 kPa), expressed as a percentage of the whole soil.

		Column Group Label:	0.33 bar H2O
Column Physical Name:	**wthirdbar_l**	Column Label:	Low
Column Physical Name:	**wthirdbar_r**	Column Label:	RV
Column Physical Name:	**wthirdbar_h**	Column Label:	High

The volumetric content of soil water retained at a tension of 1/3 bar (33 kPa), expressed as a percentage of the whole soil.

		Column Group Label:	15 bar H2O
Column Physical Name:	**wfifteenbar_l**	Column Label:	Low
Column Physical Name:	**wfifteenbar_r**	Column Label:	RV
Column Physical Name:	**wfifteenbar_h**	Column Label:	High

The volumetric content of soil water retained at a tension of 15 bars (1500 kPa), expressed as a percentage of the whole soil.

		Column Group Label:	Satiated H2O
Column Physical Name:	**wsatiated_l**	Column Label:	Low
Column Physical Name:	**wsatiated_r**	Column Label:	RV
Column Physical Name:	**wsatiated_h**	Column Label:	High

The estimated volumetric soil water content at or near zero bar tension, expressed as a percentage of the whole soil.

		Column Group Label:	LEP
Column Physical Name:	**lep_l**	Column Label:	Low
Column Physical Name:	**lep_r**	Column Label:	RV
Column Physical Name:	**lep_h**	Column Label:	High

The linear expression of the volume difference of natural soil fabric at 1/3 or 1/10 bar water content and oven dryness. The volume change is reported as percent change for the whole soil.

Table Physical Name: **chorizon**

Table Label: Horizon

Column Group Label: LL

Column Physical Name: **ll_l** Column Label: Low
Column Physical Name: **ll_r** Column Label: RV
Column Physical Name: **ll_h** Column Label: High

The water content of the soil at the change between the liquid and plastic states.

Column Group Label: PI

Column Physical Name: **pi_l** Column Label: Low
Column Physical Name: **pi_r** Column Label: RV
Column Physical Name: **pi_h** Column Label: High

The numerical difference between the liquid limit and plastic limit.

Column Group Label: AASHTO Group Index

Column Physical Name: **aashind_l** Column Label: Low
Column Physical Name: **aashind_r** Column Label: RV
Column Physical Name: **aashind_h** Column Label: High

The empirical group index formula devised for approximately within-group evaluation of the "clayey granular materials" and the "silty-clay materials".

Column Physical Name: **kwfact** Column Label: Kw

An erodibility factor which quantifies the susceptibility of soil particles to detachment and movement by water. This factor is adjusted for the effect of rock fragments.

Column Physical Name: **kffact** Column Label: Kf

An erodibility factor which quantifies the susceptibility of soil particles to detachment by water.

Column Group Label: CaCO3

Column Physical Name: **caco3_l** Column Label: Low
Column Physical Name: **caco3_r** Column Label: RV
Column Physical Name: **caco3_h** Column Label: High

The quantity of Carbonate (CO3) in the soil expressed as CaCO3 and as a weight percentage of the less than 2 mm size fraction.

Column Group Label: Gypsum

Column Physical Name: **gypsum_l** Column Label: Low
Column Physical Name: **gypsum_r** Column Label: RV
Column Physical Name: **gypsum_h** Column Label: High

The percent by weight of hydrated calcium sulfate in the less than 20 mm fraction of soil.

Column Group Label: SAR

Column Physical Name: **sar_l** Column Label: Low
Column Physical Name: **sar_r** Column Label: RV
Column Physical Name: **sar_h** Column Label: High

A measure of the amount of Sodium (Na) relative to Calcium (Ca) and Magnesium (Mg) in the water extract from saturated soil paste.

Table Physical Name: **chorizon**

Table Label: Horizon

Column Physical Name	Column Group Label / Column Label
	Column Group Label: EC
ec_l	Column Label: Low
ec_r	Column Label: RV
ec_h	Column Label: High

The electrical conductivity of an extract from saturated soil paste.

Column Physical Name	Column Group Label / Column Label
	Column Group Label: CEC-7
cec7_l	Column Label: Low
cec7_r	Column Label: RV
cec7_h	Column Label: High

The amount of readily exchangeable cations that can be electrically adsorbed to negative charges in the soil, soil constituent, or other material, at pH 7.0, as estimated by the ammonium acetate method.

Column Physical Name	Column Group Label / Column Label
	Column Group Label: ECEC
ecec_l	Column Label: Low
ecec_r	Column Label: RV
ecec_h	Column Label: High

The sum of NH4OAc extractable bases plus KCl extractable aluminum.

Column Physical Name	Column Group Label / Column Label
	Column Group Label: Sum of Bases
sumbases_l	Column Label: Low
sumbases_r	Column Label: RV
sumbases_h	Column Label: High

The sum of NH4OAc extractable bases (pH 7.0), reported on less than 2mm base.

Column Physical Name	Column Group Label / Column Label
	Column Group Label: pH H2O
ph1to1h2o_l	Column Label: Low
ph1to1h2o_r	Column Label: RV
ph1to1h2o_h	Column Label: High

The negative logarithm to the base 10, of the hydrogen ion activity in the soil using the 1:1 soil-water ratio method. A numerical expression of the relative acidity or alkalinity of a soil sample. (SSM)

Column Physical Name	Column Group Label / Column Label
	Column Group Label: pH CaCl2
ph01mcacl2_l	Column Label: Low
ph01mcacl2_r	Column Label: RV
ph01mcacl2_h	Column Label: High

The negative logarithm to base of 10 or the hydrogen ion activity in the soil, using the 0.01M CaCl2 method, in a 1:2 soil:solution ratio. A numerical expression of the relative acidity or alkalinity of a soil sample. (SSM)

Column Physical Name	Column Group Label / Column Label
	Column Group Label: Free Iron
freeiron_l	Column Label: Low
freeiron_r	Column Label: RV
freeiron_h	Column Label: High

The secondary iron oxides such as geothite, hematite, ferrihydrite, lepidocrocite and maghemite. This form of iron may occur as discrete particles, as coatings on other particles, or as cementing agents between soil mineral grains. It is iron extracted by dithionite-citrate.

Table Physical Name: **chorizon**

Table Label: Horizon

Column Group Label: Oxalate Fe

Column Physical Name:	**feoxalate_l**	Column Label:	Low
Column Physical Name:	**feoxalate_r**	Column Label:	RV
Column Physical Name:	**feoxalate_h**	Column Label:	High

The amount of ammonium oxalate extractable iron in the less than 2mm fraction. It is considered a measure of noncrystalline iron in the soil.

Column Group Label: Ext Acidity

Column Physical Name:	**extracid_l**	Column Label:	Low
Column Physical Name:	**extracid_r**	Column Label:	RV
Column Physical Name:	**extracid_h**	Column Label:	High

A measure of soil exchangeable hydrogen ions that may become active by cation exchange.

Column Group Label: Extract Al

Column Physical Name:	**extral_l**	Column Label:	Low
Column Physical Name:	**extral_r**	Column Label:	RV
Column Physical Name:	**extral_h**	Column Label:	High

The amount of aluminum extracted in 1 normal potassium chloride. The following laboratory method is applied: 55 ml of 1 normal potassium chloride is extracted through 2.5 g of soil sample. The extract is analyzed by use of an atomic adsorption spectrometer or similar instrument (SSIR #1, method 6G9a and NSSH).

Column Group Label: Oxalate Al

Column Physical Name:	**aloxalate_l**	Column Label:	Low
Column Physical Name:	**aloxalate_r**	Column Label:	RV
Column Physical Name:	**aloxalate_h**	Column Label:	High

The amount of ammonium oxalate extractable aluminum in the less than 2mm fraction. This is an estimate of the total pedogenic aluminum, much of which may be in noncrystalline material, or complexed by organic matter.

Column Group Label: Bray 1 Phos

Column Physical Name:	**pbray1_l**	Column Label:	Low
Column Physical Name:	**pbray1_r**	Column Label:	RV
Column Physical Name:	**pbray1_h**	Column Label:	High

The amount of phosphorous in the less than 2mm fraction, that is extractable using the Bray1 method. It represents the plant available phosphorous content.

Column Group Label: Oxalate Phos

Column Physical Name:	**poxalate_l**	Column Label:	Low
Column Physical Name:	**poxalate_r**	Column Label:	RV
Column Physical Name:	**poxalate_h**	Column Label:	High

The amount of phosphorous in the less than 2mm fraction, that is extractable by aluminum oxalate method. It represents the phosphorous level intermediate between total P and water soluble P.

Column Group Label: Water Soluble Phos

Column Physical Name:	**ph2osoluble_l**	Column Label:	Low
Column Physical Name:	**ph2osoluble_r**	Column Label:	RV
Column Physical Name:	**ph2osoluble_h**	Column Label:	High

The amount of water soluble phosphorous in the less than 2mm fraction, that is extractable by distilled water. It represents the mobile phosphorous content.

Table Physical Name: **chorizon**

Table Label: Horizon

Column Group Label: Total Phos

Column Physical Name:	**ptotal_l**	Column Label:	Low
Column Physical Name:	**ptotal_r**	Column Label:	RV
Column Physical Name:	**ptotal_h**	Column Label:	High

The estimate of the total phosphorous content of the soil, measured after total dissolution of a size fraction of the soil material. It is reported as a gravimetric percent oxide of the size fraction used.

Column Physical Name: **excavdifcl** Column Label: Excav Diff

An estimation of the difficulty of working an excavation into soil layers, horizons, pedons, or geologic layers. In most instances, excavation difficulty is related to and controlled by a water state.

Column Physical Name: **excavdifms** Column Label: Excav Diff Moisture

The soil moisture status for which the excavation difficulty class is assigned for the individual component.

Column Physical Name: **cokey** Column Label: Component Key

A non-connotative string of characters used to uniquely identify a record in the Component table.

Column Physical Name: **chkey** Column Label: Chorizon Key

A non-connotative string of characters used to uniquely identify a record in the Horizon table.

Table Physical Name: **chpores**
Table Label: Horizon Pores

Column Group Label: Quantity
Column Physical Name: **poreqty_l** Column Label: Low
Column Physical Name: **poreqty_r** Column Label: RV
Column Physical Name: **poreqty_h** Column Label: High

The number of a selected size of pores per unit area of undisturbed soils.

Column Physical Name: **poresize** Column Label: Size

The average diameter of a pore. (SSM)

Column Physical Name: **porecont** Column Label: Continuity

Average vertical distance through which the minimum diameter of the pore exceeds 0.5mm when the soil layer is moist or wetter.

Column Physical Name: **poreshp** Column Label: Shape

A description of the multiaxial shape of the pore.

Column Physical Name: **rvindicator** Column Label: RV?

A yes/no field that indicates if a value or row (set of values) is representative for the component.

Column Physical Name: **chkey** Column Label: Chorizon Key

A non-connotative string of characters used to uniquely identify a record in the Horizon table.

Column Physical Name: **chporeskey** Column Label: Chorizon Pores Key

A non-connotative string of characters used to uniquely identify a record in the Horizon Pores table.

Table Physical Name: **chstruct**

Table Label: Horizon Structure

Column Physical Name: **structgrade** Column Label: Grade

The distinctness of the peds described in terms of ease of separation into discrete units.

Column Physical Name: **structsize** Column Label: Size

Measurement of the smallest dimension of the selected secondary particles, units, or peds.

Column Physical Name: **structtype** Column Label: Type

The multiaxial shape of secondary particles, units, or peds.

Column Physical Name: **structid** Column Label: Structure ID

An integer number assigned by the user to identify a particular row in the table.

Column Physical Name: **structpartsto** Column Label: Parts to Structure ID

An integer referring to the Structure ID in another row in the same table, intended to indicate if the soil structure described on the current row parts or separates to the structure described on the other row.

Column Physical Name: **chstructgrpkey** Column Label: Chorizon Structure Group Key

A non-connotative string of characters used to uniquely identify a record in the Horizon Structure Group table.

Column Physical Name: **chstructkey** Column Label: Chorizon Structure Key

A non-connotative string of characters used to uniquely identify a record in the Horizon Structure table.

Table Physical Name: **chstructgrp**

Table Label: Horizon Structure Group

Column Physical Name: **structgrpname** Column Label: Structure

The narrative description of the soil structure within a soil horizon.

Column Physical Name: **rvindicator** Column Label: RV?

A yes/no field that indicates if a value or row (set of values) is representative for the component.

Column Physical Name: **chkey** Column Label: Chorizon Key

A non-connotative string of characters used to uniquely identify a record in the Horizon table.

Column Physical Name: **chstructgrpkey** Column Label: Chorizon Structure Group Key

A non-connotative string of characters used to uniquely identify a record in the Horizon Structure Group table.

Table Physical Name: **chtext**

Table Label: Horizon Text

Column Physical Name: **recdate** Column Label: Date

The date associated with a particular record, expressed as month, day, year -- xx/xx/xxxx.

Column Physical Name: **chorizontextkind** Column Label: Kind

A text entry is identified by its kind, category, and subcategory. Kind is the highest division of classification. Text kind provides a grouping of text entries according to their subject matter.

Column Physical Name: **textcat** Column Label: Category

A text entry is identified by its kind, category, and subcategory. Category is a subdivision of kind. "Agr" and "Soi" are two categories for the text kind "Nontechnical Description".

Column Physical Name: **textsubcat** Column Label: Subcategory

A text entry is identified by its kind, category, and subcategory. Subcategory is a subdivision of category. For text kind "Nontechnical" description and text category "Agr", subcategory would correspond to the SSSD field "desnum".

Column Physical Name: **text** Column Label: Text

The actual narrative text portion of a text entry. The other parts of a text entry are its identifiers: kind, category and subcategory.

Column Physical Name: **chkey** Column Label: Chorizon Key

A non-connotative string of characters used to uniquely identify a record in the Horizon table.

Column Physical Name: **chtextkey** Column Label: Chorizon Text Key

A non-connotative string of characters used to uniquely identify a record in the Horizon Text table.

Table Physical Name: **chtexture**

Table Label: Horizon Texture

Column Physical Name: **texcl** Column Label: Texture

An expression, based on the USDA system of particle sizes, for the relative portions of the various size groups of individual mineral grains less than 2mm equivalent diameter in a mass of soil.

Column Physical Name: **lieutex** Column Label: In Lieu

Substitute terms applied to materials that do not fit into a textural class because of organic matter content, size, rupture resistance, solubility, or another reason.

Column Physical Name: **chtgkey** Column Label: Chorizon Texture Group Key

A non-connotative string of characters used to uniquely identify a record in the Horizon Texture Group table.

Column Physical Name: **chtkey** Column Label: Chorizon Texture Key

A non-connotative string of characters used to uniquely identify a record in the Horizon Texture table.

Table Physical Name: **chtexturegrp**

Table Label: Horizon Texture Group

Column Physical Name: **texture** Column Label: Tex Mod & Class

Name for the concatenation of TEXTURE_MODIFIER and TEXTURE_CLASS.

Column Physical Name: **stratextsflag** Column Label: Stratified?

A Boolean flag that when set (Y) indicates that the textures that comprise a particular texture group, are stratified.

Column Physical Name: **rvindicator** Column Label: RV?

A yes/no field that indicates if a value or row (set of values) is representative for the component.

Column Physical Name: **texdesc** Column Label: Texture Description

The full texture description for a horizon, using full texture class and in lieu of names rather than abbreviations.

Column Physical Name: **chkey** Column Label: Chorizon Key

A non-connotative string of characters used to uniquely identify a record in the Horizon table.

Column Physical Name: **chtgkey** Column Label: Chorizon Texture Group Key

A non-connotative string of characters used to uniquely identify a record in the Horizon Texture Group table.

Table Physical Name: **chtexturemod**

Table Label: Horizon Texture Modifier

Column Physical Name: **texmod** Column Label: Modifier

A term used to denote the presence of a condition or component other than sand, silt, or clay.

Column Physical Name: **chtkey** Column Label: Chorizon Texture Key

A non-connotative string of characters used to uniquely identify a record in the Horizon Texture table.

Column Physical Name: **chtexmodkey** Column Label: Chorizon Texture Modifier Key

A non-connotative string of characters used to uniquely identify a record in the Horizon Texture Modifier table.

Table Physical Name: **chunified**

Table Label: Horizon Unified

Column Physical Name: **unifiedcl** Column Label: Unified

A system for classifying mineral and organo-mineral soils for engineering purposes based on particle size characteristics, liquid limit, and plasticity index.

Column Physical Name: **rvindicator** Column Label: RV?

A yes/no field that indicates if a value or row (set of values) is representative for the component.

Column Physical Name: **chkey** Column Label: Chorizon Key

A non-connotative string of characters used to uniquely identify a record in the Horizon table.

Column Physical Name: **chunifiedkey** Column Label: Chorizon Unified Key

A non-connotative string of characters used to uniquely identify a record in the Horizon Unified table.

Table Physical Name: **cocanopycover**

Table Label: Component Canopy Cover

Column Physical Name: **plantcov** Column Label: Canopy Cover %

Percent of coverage (canopy) attributed to a specific plant species.

Column Physical Name: **plantsym** Column Label: Plant Symbol

A unique symbol used to identify a plant genus or a plant species. (The PLANTS Database, USDA-NRCS, National Plant Data Center.)

Column Physical Name: **plantsciname** Column Label: Scientific Name

The full genus and species name as listed in the PLANTS Database, USDA-NRCS, National Plant Data Center.

Column Physical Name: **plantcomname** Column Label: Common Name

A generally accepted common name used for a plant in a geographic region, usually a state.

Column Physical Name: **cokey** Column Label: Component Key

A non-connotative string of characters used to uniquely identify a record in the Component table.

Column Physical Name: **cocanopycovkey** Column Label: Component Canopy Cover Key

A non-connotative string of characters used to uniquely identify a record in the Component Canopy Cover table.

Table Physical Name: **cocropyld**

Table Label: Component Crop Yield

Column Physical Name: **cropname** — Column Label: Crop Name

The common name for the crop.

Column Physical Name: **yldunits** — Column Label: Units

Crop yield units per unit area for the specified crop.

Column Group Label: Nirr Yield

Column Physical Name: **nonirryield_l** — Column Label: Low
Column Physical Name: **nonirryield_r** — Column Label: RV
Column Physical Name: **nonirryield_h** — Column Label: High

The expected yield per acre of the specific crop without supplemental irrigation.

Column Group Label: Irr Yield

Column Physical Name: **irryield_l** — Column Label: Low
Column Physical Name: **irryield_r** — Column Label: RV
Column Physical Name: **irryield_h** — Column Label: High

The expected yield per acre of the specific crop with irrigation.

Column Physical Name: **cropprodindex** — Column Label: Prod Index

An index of the capacity of a soil to produce a specific plant under a defined management system.

Column Physical Name: **vasoiprdgrp** — Column Label: VA Soil Prod Grp

Crop specific groupings of soils indicating potential yields under a high level of management.

Column Physical Name: **cokey** — Column Label: Component Key

A non-connotative string of characters used to uniquely identify a record in the Component table.

Column Physical Name: **cocropyldkey** — Column Label: Component Crop Yield Key

A non-connotative string of characters used to uniquely identify a record in the Component Crop Yield table.

Table Physical Name: **codiagfeatures**

Table Label: Component Diagnostic Features

Column Physical Name: **featkind** Column Label: Kind

Kind of diagnostic horizon or diagnostic feature in the soil.

Column Group Label: Top Depth

Column Physical Name: **featdept_l** Column Label: Low
Column Physical Name: **featdept_r** Column Label: RV
Column Physical Name: **featdept_h** Column Label: High

The distance from the top of the soil to the upper boundary of the identified diagnostic horizon or to the upper limit of the occurrence of the diagnostic feature.

Column Group Label: Bottom Depth

Column Physical Name: **featdepb_l** Column Label: Low
Column Physical Name: **featdepb_r** Column Label: RV
Column Physical Name: **featdepb_h** Column Label: High

The distance from the top of the soil to the base of the identified diagnostic horizon or to the lower limit of the occurrence of the diagnostic feature.

Column Group Label: Thickness

Column Physical Name: **featthick_l** Column Label: Low
Column Physical Name: **featthick_r** Column Label: RV
Column Physical Name: **featthick_h** Column Label: High

The distance from the upper to lower boundary of the identified diagnostic horizon or feature.

Column Physical Name: **cokey** Column Label: Component Key

A non-connotative string of characters used to uniquely identify a record in the Component table.

Column Physical Name: **codiagfeatkey** Column Label: Component Diagnostic Features Key

A non-connotative string of characters used to uniquely identify a record in the Component Diagnostic Features table.

Table Physical Name: **coecoclass**

Table Label: Component Ecological Classification

Column Physical Name: **ecoclasstypename** Column Label: Ecological Classification Type Name

The name of a particular ecological classification scheme. An example might be "West Virginia Grassland Suitability Groups" or "NRCS Ecological Sites".

Column Physical Name: **ecoclassref** Column Label: Ecological Classification Reference

The reference citation for a particular ecological classification scheme, typically a publication.

Column Physical Name: **ecoclassid** Column Label: Ecological Classification ID

The identifier of a particular ecological community. For NRCS ecological sites, it is the concatenated form of ecological site type, ecological site MLRA, ecological site LRU, ecological site number and ecological site state FIPS alpha code.

Column Physical Name: **ecoclassname** Column Label: Ecological Classification Name

The descriptive name of a particular ecological community. For NRCS ecological sites, it is the concatenated form of three or six other fields. The actual fields that are concatenated together to form this name differ between range and forest ecological sites.

Column Physical Name: **cokey** Column Label: Component Key

A non-connotative string of characters used to uniquely identify a record in the Component table.

Column Physical Name: **coecoclasskey** Column Label: Component Ecological Classification Key

A non-connotative string of characters used to uniquely identify a record in the Component Ecological Classification table.

Table Physical Name: **coeplants**

Table Label: Component Existing Plants

Column Physical Name: **plantsym** Column Label: Plant Symbol

A unique symbol used to identify a plant genus or a plant species. (The PLANTS Database, USDA-NRCS, National Plant Data Center.)

Column Physical Name: **plantsciname** Column Label: Scientific Name

The full genus and species name as listed in the PLANTS Database, USDA-NRCS, National Plant Data Center.

Column Physical Name: **plantcomname** Column Label: Common Name

A generally accepted common name used for a plant in a geographic region, usually a state.

Column Physical Name: **forestunprod** Column Label: Understory Prod %

The percentage of total annual site production attributed to the specific forest understory plant, expressed as percent of total air dry plant material by weight.

Column Physical Name: **rangeprod** Column Label: Range Prod %

The percentage of total annual site production attributed to the specific rangeland plant, expressed as percent of total air dry plant material by weight.

Column Physical Name: **cokey** Column Label: Component Key

A non-connotative string of characters used to uniquely identify a record in the Component table.

Column Physical Name: **coeplantskey** Column Label: Component Existing Plants Key

A non-connotative string of characters used to uniquely identify a record in the Component Existing Plants table.

SSURGO 2.3.2
Table Column Descriptions

Table Physical Name: **coerosionacc**

Table Label: Component Erosion Accelerated

Column Physical Name: **erokind** Column Label: Kind

The type of detachment and removal of surface soil particles as largely affected by human activities. (SSM)

Column Physical Name: **rvindicator** Column Label: RV?

A yes/no field that indicates if a value or row (set of values) is representative for the component.

Column Physical Name: **cokey** Column Label: Component Key

A non-connotative string of characters used to uniquely identify a record in the Component table.

Column Physical Name: **coeroacckey** Column Label: Component Erosion Accelerated Key

A non-connotative string of characters used to uniquely identify a record in the Component Erosion Accelerated table.

Table Physical Name: **coforprod**

Table Label: Component Forest Productivity

Column Physical Name: **plantsym** Column Label: Plant Symbol

A unique symbol used to identify a plant genus or a plant species. (The PLANTS Database, USDA-NRCS, National Plant Data Center.)

Column Physical Name: **plantsciname** Column Label: Scientific Name

The full genus and species name as listed in the PLANTS Database, USDA-NRCS, National Plant Data Center.

Column Physical Name: **plantcomname** Column Label: Common Name

A generally accepted common name used for a plant in a geographic region, usually a state.

Column Physical Name: **siteindexbase** Column Label: Site Index Base

The number in the National Register of Site Index Curves corresponding to the site index curve used to determine the site index and the annual productivity of forest overstory tree species.

Column Group Label: Site Index

Column Physical Name: **siteindex_l** Column Label: Low

Column Physical Name: **siteindex_r** Column Label: RV

Column Physical Name: **siteindex_h** Column Label: High

The height in feet of the dominant or dominant and co-dominant trees at some index age, except for the pinyon-juniper forest type, for which site index is determined by basal area.

Column Group Label: Productivity ft3/ac/yr CMAI

Column Physical Name: **fprod_l** Column Label: Low

Column Physical Name: **fprod_r** Column Label: RV

Column Physical Name: **fprod_h** Column Label: High

The annual growth of forest overstory tree species.

Column Physical Name: **cokey** Column Label: Component Key

A non-connotative string of characters used to uniquely identify a record in the Component table.

Column Physical Name: **cofprodkey** Column Label: Component Forest Productivity Key

A non-connotative string of characters used to uniquely identify a record in the Component Forest Productivity table.

Table Physical Name: **coforprodo**

Table Label: Component Forest Productivity - Other

Column Physical Name: **siteindexbase** Column Label: Site Index Base

The number in the National Register of Site Index Curves corresponding to the site index curve used to determine the site index and the annual productivity of forest overstory tree species.

Column Group Label: Site Index

Column Physical Name: **siteindex_l** Column Label: Low

Column Physical Name: **siteindex_r** Column Label: RV

Column Physical Name: **siteindex_h** Column Label: High

The height in feet of the dominant or dominant and co-dominant trees at some index age, except for the pinyon-juniper forest type, for which site index is determined by basal area.

Column Group Label: Productivity

Column Physical Name: **fprod_l** Column Label: Low

Column Physical Name: **fprod_r** Column Label: RV

Column Physical Name: **fprod_h** Column Label: High

The annual growth of forest overstory tree species.

Column Physical Name: **fprodunits** Column Label: Units

The unit of measure in which the annual productivity of forest overstory tree species is expressed.

Column Physical Name: **cofprodkey** Column Label: Component Forest Productivity Key

A non-connotative string of characters used to uniquely identify a record in the Component Forest Productivity table.

Column Physical Name: **cofprodokey** Column Label: Component Forest Productivity Other Key

A non-connotative string of characters used to uniquely identify a record in the Component Forest Productivity - Other table.

Table Physical Name: **cogeomordesc**

Table Label: Component Geomorphic Description

Column Physical Name: **geomftname** Column Label: Feature Type

One of several pseudo-hierarchical terms used to describe relative levels of scale for geomorphic terms.

Column Physical Name: **geomfname** Column Label: Feature Name

A word or group of words used to name a feature on the earth's surface, expressed in the plural form.

Column Physical Name: **geomfmod** Column Label: Feature Modifier

A user specified term(s) used in association with geomorphic features to further define, clarify, and describe the setting of a soil in the the landscape. The terms may, for example, describe relative position, mode of formation, degree of degradation, slope, or geologic time of origin.

Column Physical Name: **geomfeatid** Column Label: Feature ID

An integer number assigned by a user to identify a particular row in the table.

Column Physical Name: **existsonfeat** Column Label: Exists On Feature ID

An integer referring to the Feature ID in another row in the same table, intended to indicate a relationship between two or more rows in a table.

Column Physical Name: **rvindicator** Column Label: RV?

A yes/no field that indicates if a value or row (set of values) is representative for the component.

Column Physical Name: **cokey** Column Label: Component Key

A non-connotative string of characters used to uniquely identify a record in the Component table.

Column Physical Name: **cogeomdkey** Column Label: Component Geomorphic Description Key

A non-connotative string of characters used to uniquely identify a record in the Component Geomorphic Description table.

Table Physical Name: **cohydriccriteria**

Table Label: Component Hydric Criteria

Column Physical Name: **hydriccriterion** Column Label: Hydric Criterion

Criterion code for the soil characteristic(s) and/or feature(s) that cause the map unit component to be classified as a "hydric soil." These codes are the paragraph numbers in the hydric soil criteria publication.

Column Physical Name: **cokey** Column Label: Component Key

A non-connotative string of characters used to uniquely identify a record in the Component table.

Column Physical Name: **cohydcritkey** Column Label: Component Hydric Criteria Key

A non-connotative string of characters used to uniquely identify a record in the Component Hydric Criteria table.

Table Physical Name: **cointerp**

Table Label: Component Interpretation

Column Physical Name: **cokey** Column Label: Component Key

A non-connotative string of characters used to uniquely identify a record in the Component table.

Column Physical Name: **mrulekey** Column Label: Main Rule Key

The unique identifier of the rule at the top of the interpretation rule hierarchy (the main rule). Use this key to find the mail rule in the Component Interpretation table.

Column Physical Name: **mrulename** Column Label: Main Rule Name

The name of an interpretation, such as ENG - Dwellings with Basements. A main rule (interpretation) may contain subordinate rules, which in turn may have other subordinate rules. The main rule entry in this column is the user assigned name (typically connotative) for the interpretation rule at the top of the hierarchy.

Column Physical Name: **seqnum** Column Label: Seq

Sequential number of the feature being described.

Column Physical Name: **rulekey** Column Label: Rule Key

The unique identifier of a record in the Rule table in NASIS.

Column Physical Name: **rulename** Column Label: Rule Name

A user assigned name (typically connotative) for a particular interpretation rule.

Column Physical Name: **ruledepth** Column Label: Rule Depth

An interpretation rule may contain subordinate rules, which in turn may have subordinate rules. This is an indicator of the depth within the interpretation hierarchy that a particular rule exists, where zero is the top level.

Column Physical Name: **interpll** Column Label: Interp Low Low

The minimum extreme numeric rating for the interpretation rating.

Column Physical Name: **interpllc** Column Label: Interp Low Low Class

The rating class term for the minimum extreme of the interpretation rating.

Column Physical Name: **interplr** Column Label: Interp Low Representative Value

The minimum numeric rating of the representative values for the interpretation rating.

Column Physical Name: **interplrc** Column Label: Interp Low Representative Value Class

The rating class term for the minimum of the representative values of the interpretation rating.

Column Physical Name: **interphr** Column Label: Interp High Representative Value

The maximum numeric rating of the representative values of the interpretation rating.

Column Physical Name: **interphrc** Column Label: Interp High Representative Value Class

The rating class term for the maximum of the representative values for the interpretation rating.

Table Physical Name: **cointerp**

Table Label: Component Interpretation

Column Physical Name: **interphh** Column Label: Interp High High

The maximum extreme numeric rating for the interpretation rating.

Column Physical Name: **interphhc** Column Label: Interp High High Class

A rating class term for the maximum extreme of the interpretation rating.

Column Physical Name: **nullpropdatabool** Column Label: Null Property Data Boolean

The value of this attribute is set to true whenever any property used in an interpretation returns any null value.

Column Physical Name: **defpropdatabool** Column Label: Default Property Data Boolean

The value of this attribute is set to true whenever any property used in an interpretation returns a default value in place of any null value.

Column Physical Name: **incpropdatabool** Column Label: Inconsistent Property Data Boolean

The value of this attribute is set to true whenever any property used in an interpretation that is based on multiple observations returns inconsistent results for the low low value, the low representative value, the high representative value and the high high value.

A property always returns either a representative value or a low, high and representative value. Values for low low, low representative, high representative and high high are only derived in the case where the values of a property used in an interpretation are based on multiple observations.

Column Physical Name: **cointerpkey** Column Label: Component Interpretation Key

A non-connotative string of characters used to uniquely identify a record in the Component Interpretation table.

Table Physical Name: **comonth**

Table Label: Component Month

Column Physical Name: **monthseq** Column Label: Month Sequence

An interger number used to sequence the months of the year in their proper order.

Column Physical Name: **month** Column Label: Month

One of the twelve months of the year.

Column Physical Name: **flodfreqcl** Column Label: Flooding Frequency

The annual probability of a flood event expressed as a class. (SSM).

Column Physical Name: **floddurcl** Column Label: Flooding Duration

Average duration of inundation per flood occurrence and expressed as a class. (NSSH)

Column Physical Name: **pondfreqcl** Column Label: Ponding Frequency

The number of times ponding occurs over a period of time. (SSM)

Column Physical Name: **ponddurcl** Column Label: Ponding Duration

The average duration, or length of time, of the ponding occurrence. (NSSH)

Column Group Label: Ponding Depth

Column Physical Name: **ponddep_l** Column Label: Low

Column Physical Name: **ponddep_r** Column Label: RV

Column Physical Name: **ponddep_h** Column Label: High

The depth of surface water that is ponding on the soil.

Column Group Label: Daily Precip

Column Physical Name: **dlyavgprecip_l** Column Label: Low

Column Physical Name: **dlyavgprecip_r** Column Label: RV

Column Physical Name: **dlyavgprecip_h** Column Label: High

The daily average precipitation for the referenced month. Commonly calculated as the total precipitation for the month divided by the number of days in the month. (February nominally has 28 days).

Column Group Label: Daily ET

Column Physical Name: **dlyavgpotet_l** Column Label: Low

Column Physical Name: **dlyavgpotet_r** Column Label: RV

Column Physical Name: **dlyavgpotet_h** Column Label: High

Daily average potential evapotranspiration for the referenced month.

Column Physical Name: **cokey** Column Label: Component Key

A non-connotative string of characters used to uniquely identify a record in the Component table.

Column Physical Name: **comonthkey** Column Label: Component Month Key

A non-connotative string of characters used to uniquely identify a record in the Component Month table.

Table Physical Name: **component**
Table Label: Component

Column Group Label: Comp %
Column Physical Name: **comppct_l** Column Label: Low
Column Physical Name: **comppct_r** Column Label: RV
Column Physical Name: **comppct_h** Column Label: High

The percentage of the component of the mapunit.

Column Physical Name: **compname** Column Label: Component Name

Name assigned to a component based on its range of properties.

Column Physical Name: **compkind** Column Label: Kind

Identifies the kind of component of the mapunit. Examples are series and miscellaneous areas.

Column Physical Name: **majcompflag** Column Label: Major Component

Indicates whether or not a component is a major component in the mapunit.

Column Physical Name: **otherph** Column Label: SIR phase

Phase criterion other than slope, texture, and flooding used to identify soil components.

Column Physical Name: **localphase** Column Label: Local Phase

Phase criterion to be used at a local level, in conjunction with "component name" to help identify a soil component.

Column Group Label: Slope Gradient
Column Physical Name: **slope_l** Column Label: Low
Column Physical Name: **slope_r** Column Label: RV
Column Physical Name: **slope_h** Column Label: High

The difference in elevation between two points, expressed as a percentage of the distance between those points. (SSM)

Column Group Label: Slope Length USLE
Column Physical Name: **slopelenusle_l** Column Label: Low
Column Physical Name: **slopelenusle_r** Column Label: RV
Column Physical Name: **slopelenusle_h** Column Label: High

The distance from the point of origin of overland flow to the point where either the slope gradient decreases enough that deposition begins, or the runoff water enters a well-defined channel that may be part of a drainage network or a constructed channel. (Predicting Rainfall Erosion Losses a Guide to Conservation Planning, Agr. Handbook #537, USDA, 1978).

Column Physical Name: **runoff** Column Label: Runoff Class

Runoff potential class for the soil.

Column Physical Name: **tfact** Column Label: T

Soil loss tolerance factor. The maximum amount of erosion at which the quality of a soil as a medium for plant growth can be maintained.

Column Physical Name: **wei** Column Label: WEI

A value in tons/acre/year that is a factor in calculating soil loss by wind. The values are acquired from WEG.

Table Physical Name: **component**

Table Label: Component

Column Physical Name: **weg** Column Label: WEG

Grouping of soils that have similar properties affecting their resistance to soil blowing in cultivated areas. The groups indicate the susceptibility to soil blowing.

Column Physical Name: **erocl** Column Label: Erosion Class

Class of accelerated erosion. (SSM)

Column Physical Name: **earthcovkind1** Column Label: Cover Kind 1

The natural or artificial material that is observed to cover a portion of the earth's surface. It is determined (at least conceptually) as a vertical projection downward. Level one of a hierarchical system. (1992 NRI Instructions)

Column Physical Name: **earthcovkind2** Column Label: Cover Kind 2

The description of ground cover based on a set of vegetal and non-vegetal classes. It is determined (at least conceptually) as a vertical projection downward. Level two of a hierarchical system.

Column Physical Name: **hydricon** Column Label: Hydric Condition

Natural condition of the soil component.

Column Physical Name: **hydricrating** Column Label: Hydric Rating

A yes/no field that indicates whether or not a map unit component is classified as a "hydric soil". If rated as hydric, the specific criteria met are listed in the Component Hydric Criteria table.

Column Physical Name: **drainagecl** Column Label: Drainage Class

Identifies the natural drainage conditions of the soil and refers to the frequency and duration of wet periods. An example of a drainage class is well drained.

Column Group Label: Elevation

Column Physical Name: **elev_l** Column Label: Low

Column Physical Name: **elev_r** Column Label: RV

Column Physical Name: **elev_h** Column Label: High

The vertical distance from mean sea level to a point on the earth's surface.

Column Physical Name: **aspectccwise** Column Label: Aspect Counter Clockwise

One end of the range in characteristics for the slope aspect of a component. This end of the range is expressed in degrees measured clockwise from true north, and is the end of the range that is counter-clockwise from the representative slope aspect.

Column Physical Name: **aspectrep** Column Label: Aspect Representative

The common, typical, or expected direction toward which the surface of the soil faces, expressed as an angle between 0 and 360 degrees measured clockwise from true north.

Column Physical Name: **aspectcwise** Column Label: Aspect Clockwise

One end of the range in characteristics for the slope aspect of a component. This end of the range is expressed in degrees measured clockwise from true north, and is the end of the range that is clockwise from the representative slope aspect.

Table Physical Name: **component**
Table Label: Component

Column Physical Name: **geomdesc** Column Label: Geomorphic Description

A narrative description of the geomorphic setting of a component. The description may incorporate multiple geomorphic features as well as their relationship to each other. The individual parts of the description are recorded in the Component Geomorphic Description table.

Column Group Label: Albedo Dry
Column Physical Name: **albedodry_l** Column Label: Low
Column Physical Name: **albedodry_r** Column Label: RV
Column Physical Name: **albedodry_h** Column Label: High

The estimated ratio of the incident short-wave (solar) radiation that is reflected by the air dry, less than 2 mm fraction of the soil surface.

Column Group Label: MAAT
Column Physical Name: **airtempa_l** Column Label: Low
Column Physical Name: **airtempa_r** Column Label: RV
Column Physical Name: **airtempa_h** Column Label: High

The arithmetic average of the daily maximum and minimum temperatures for a calendar year taken over the standard "normal" period, 1961 to 1990.

Column Group Label: MAP
Column Physical Name: **map_l** Column Label: Low
Column Physical Name: **map_r** Column Label: RV
Column Physical Name: **map_h** Column Label: High

The arithmetic average of the total annual (liquid) precipitation taken over the standard "normal" period, 1961-1990.

Column Group Label: REAP
Column Physical Name: **reannualprecip_l** Column Label: Low
Column Physical Name: **reannualprecip_r** Column Label: RV
Column Physical Name: **reannualprecip_h** Column Label: High

An estimate of the amount of moisture available for plant use and/or soil forming processes at a given site. It may vary, plus or minus, from "actual" precipitation amounts as a function of runon, runoff, temperature, aspect, etc.

Column Group Label: Frost Free Days
Column Physical Name: **ffd_l** Column Label: Low
Column Physical Name: **ffd_r** Column Label: RV
Column Physical Name: **ffd_h** Column Label: High

The expected number of days between the last freezing temperature (0 degrees Celsius) in spring (Jan-Jul) and the first freezing temperature (0 degrees Celsius) in the fall (Aug-Dec). The number of days is based on the probability that the values for the standard "normal" period of 1961 to 1990 will be exceeded in 5 years out of 10.

Column Physical Name: **nirrcapcl** Column Label: Nirr LCC

The broadest category in the land capability classification system for nonirrigated soils.

Column Physical Name: **nirrcapscl** Column Label: Nirr Subcl

The second category in the land capability classification system for nonirrigated soils.

Column Physical Name: **nirrcapunit** Column Label: Nirr LCU

The third category in the land capability classification system for nonirrigated soils.

Table Physical Name: **component**

Table Label: Component

Column Physical Name: **irrcapcl** Column Label: Irr LCC

The broadest category in the land capability classification system for irrigated soils.

Column Physical Name: **irrcapscl** Column Label: Irr Subcl

The second category in the land capability classification system for irrigated soils.

Column Physical Name: **irrcapunit** Column Label: Irr LCU

The third category in the land capability classification system for irrigated soils.

Column Physical Name: **cropprodindex** Column Label: Prod Index

An index of the capacity of a soil to produce a specific plant under a defined management system.

Column Physical Name: **constreeshrubgrp** Column Label: Cons Tree Shrub Group

The identifier for a particular Conservation Tree Shrub Group (CTSG) which that is associated with a soil map unit component. A CTSG is a physiographic unit or area having similar climatic and edaphic characteristics that control the selection and height of growth of trees and shrubs (National Forestry Manual).

Column Physical Name: **wndbrksuitgrp** Column Label: Windbreak Suitability (Obsolete)

A grouping for selecting plant species best suited for different kinds of soils and for predicting height growth and effectiveness. (National Forestry Manual)

Column Group Label: Range Prod

Column Physical Name: **rsprod_l** Column Label: Low

Column Physical Name: **rsprod_r** Column Label: RV

Column Physical Name: **rsprod_h** Column Label: High

The estimated annual potential production of range forage per year.

Column Physical Name: **foragesuitgrpid** Column Label: Forage Suitability Group ID

The identifier of the Forage Suitability Group to which the map unit component is assigned.

Column Physical Name: **wlgrain** Column Label: Grain Habitat

Suitability of the soil to produce the wildlife element grain.

Column Physical Name: **wlgrass** Column Label: Grass Habitat

Suitability of the soil to produce the wildlife element grass.

Column Physical Name: **wlherbaceous** Column Label: Herbaceous Habitat

Suitability of the soil to produce the wildlife element herbaceous plants.

Column Physical Name: **wlshrub** Column Label: Shrub Habitat

Suitability of the soil to produce the wildlife element shrub.

Column Physical Name: **wlconiferous** Column Label: Conifer Habitat

Suitability of the soil to produce the wildlife element coniferous trees.

Table Physical Name: **component**

Table Label: Component

Column Physical Name: **wlhardwood** Column Label: Hardwood Habitat

Suitability of the soil to produce the wildlife element hardwood trees.

Column Physical Name: **wlwetplant** Column Label: Wetland Habitat

Suitability of the soil to produce the wildlife habitat element wetland plant.

Column Physical Name: **wlshallowwat** Column Label: Water Habitat

Suitability of the soil to support the wildlife habitat element shallow water.

Column Physical Name: **wlrangeland** Column Label: Rangeland Wildlife

Suitability of the soil to support the habitat requirements for rangeland wildlife.

Column Physical Name: **wlopenland** Column Label: Openland Wildlife

Suitability of the soil to support the habitat requirements for openland wildlife.

Column Physical Name: **wlwoodland** Column Label: Woodland Wildlife

Suitability of the soil to produce the habitat elements for woodland wildlife.

Column Physical Name: **wlwetland** Column Label: Wetland Wildlife

Suitability of the soil to support the habitat elements for wetland wildlife.

Column Physical Name: **soilslippot** Column Label: Soil Slip Pot

The possibility that a mass of soil will slip when these conditions are met: 1) vegetation is removed, 2) soil water is at or near saturation, and 3) other normal practices are applied. Increasing the hazard of slippage but not considered in this rating are: 1) the undercutting lower portions or loading the upper parts of a slope or 2) altering the drainage or offsite water contribution to the site such as through irrigation.

Column Physical Name: **frostact** Column Label: Frost Action

An interpretation rating of the susceptibility of the soil to frost heaving.

Column Group Label: Init Subsid

Column Physical Name: **initsub_l** Column Label: Low

Column Physical Name: **initsub_r** Column Label: RV

Column Physical Name: **initsub_h** Column Label: High

The decrease of surface elevation that occurs within the first 3 years of drainage of wet soils having organic layers or semifluid mineral layers. (NSSH)

Column Group Label: Total Subsid

Column Physical Name: **totalsub_l** Column Label: Low

Column Physical Name: **totalsub_r** Column Label: RV

Column Physical Name: **totalsub_h** Column Label: High

The potential decrease of surface elevation as a result of the drainage of wet soils having organic layers or semifluid mineral layers. (NSSH)

Column Physical Name: **hydgrp** Column Label: Hydrologic Group

A group of soils having similar runoff potential under similar storm and cover conditions. Examples are A and A/D. (NSSH)

Table Physical Name: **component**

Table Label: Component

Column Physical Name: **corcon** Column Label: Corrosion Concrete

Susceptibility of concrete to corrosion when in contact with the soil.

Column Physical Name: **corsteel** Column Label: Corrosion Steel

Susceptibility of uncoated steel to corrosion when in contact with the soil.

Column Physical Name: **taxclname** Column Label: Taxonomic Class

A concatenation of the Soil Taxonomy subgroup and family for a soil (long name).

Column Physical Name: **taxorder** Column Label: Order

The highest level in Soil Taxonomy.

Column Physical Name: **taxsuborder** Column Label: Suborder

The second level of Soil Taxonomy. The suborder is below the order and above the great group.

Column Physical Name: **taxgrtgroup** Column Label: Great Group

The third level of Soil Taxonomy. The category is below the suborder and above the subgroup.

Column Physical Name: **taxsubgrp** Column Label: Subgroup

The fourth level of Soil Taxonomy. The subgroup is below great group and above family.

Column Physical Name: **taxpartsize** Column Label: Particle Size

Particle-size classes are used as family differentiae. Particle-size refers to grain-size distribution of the whole soil and is not the same as texture. (Soil Taxonomy).

Column Physical Name: **taxpartsizemod** Column Label: Particle Size Mod

Taxonomic family criteria that is used to indicate the presence of more than two strongly contrasting classes in the particle size control section. (Soil Taxonomy)

Column Physical Name: **taxceactcl** Column Label: CEC Activity Cl

Cation exchange activity classes are used as family criteria differentiae. It is the relative cation exchange (CEC) activity level of the soil based on the CEC to clay ratio. (Soil Taxonomy)

Column Physical Name: **taxreaction** Column Label: Reaction

Indicates the presence or absence of carbonates and the reaction. They are treated together because of their intimate relationship, and are used to indicate family differentiae. (Soil Taxonomy)

Column Physical Name: **taxtempcl** Column Label: Temp Class

The taxonomic family temperature class used to construct the official classification name. It may be null when the taxonomic family temperature class is embedded in the classification name. The actual taxonomic temperature regime is recorded in another place.

Column Physical Name: **taxmoistscl** Column Label: Moist Subclass

Soil moisture subclasses are taxonomic subgroup criteria, whether included or not in the name of the subgroup. The definition of each subclass is dependent upon the specific taxonomic great group to which it is attached.

Table Physical Name: **component**

Table Label: Component

Column Physical Name: **taxtempregime** Column Label: Temp Regime

Soil temperature regime as defined in Soil Taxonomy.

Column Physical Name: **soiltaxedition** Column Label: Keys to Taxonomy Edition Used

The edition of Keys to Soil Taxonomy used to classify the soil.

Column Physical Name: **castorieindex** Column Label: CA Storie Index

The California Storie Index expresses numerically the relative degree of suitability of a soil for general intensive agricultural uses at the time of evaluation. The rating is based on soil characteristics only and is obtained by evaluating such factors as soil depth, texture of the surface soil, subsoil characteristics, and surface relief.

Storie, R. Earl and Walter W. Weir. 1948. Manual for identifying and classifying California soil series. With 1958 Supplement, revised 1978. Associated Students Store, University of California, Berkley, California.

Column Physical Name: **flecolcomnum** Column Label: FL Ecol Comm #

Numbers correspond to the NRCS printed publication "26 Ecological Communities of Florida" 1995. This publication is based on the awareness that a soil type commonly supports a specific vegetative community, which in turn provides the habitat needed by specific wildlife species.

Column Physical Name: **flhe** Column Label: FL HE

A data element with a yes/no entry, assigned by soil component, used in Florida. It is used to identify highly erodible land.

Column Physical Name: **flphe** Column Label: FL PHE

A data element with a yes/no entry, assigned by soil component, used in Florida. The basis for identifying highly erodible land is the erodibility index of a soil survey map unit. The erodibility index of a soil is determined by dividing the potential erodibility for each soil survey map unit by the soil loss tolerance (T) value established for the soil. The potential erodibility for a map unit differs according to the erosion type (water or wind erosion). The T value represents the maximum annual rate of soil erosion that could take place without causing a decline in long-term productivity. A soil map unit with an erodibility index of 8 or more is a highly erodible soil map unit.

For water erosion, a soil survey map unit is potentially highly erodible if: (1) the RKLS/T value using the minimum LS factor is less than 8 and (2) the RKLS/T value using the maximum LS factor is equal to or greater than 8. (Predicting Rainfall Erosion Losses; A Guide to Conservation Planning, Field Office Technical Guide, Nat. FSA Handbook Sec. 511.23, and Florida Erosion Control Handbook)

Column Physical Name: **flsoilleachpot** Column Label: FL Leach Pot

The potential of the soil to allow chemicals to leave the application site by leaching through the soil, as used in Florida state law. Soils with a rating of High or Medium are considered to pose a potential leaching hazard.

Column Physical Name: **flsoirunoffpot** Column Label: FL Runoff Pot

The potential of the soil to allow chemicals to leave the application site with runoff water and/or detached soil particles, as defined for use in Florida. Soils with a rating of High or Medium are considered to pose a potential runoff hazard.

Column Physical Name: **fltemik2use** Column Label: FL Temik

The following soil related use restrictions for Temik 10G (aldicarb) exits if the pesticide is to be applied to citrus in Florida.
Temik cannot be used within 1000 feet of a drinking water well unless it is known that the well is cased to 100 feet below ground level or to a minimum of 30 feet below the water table in soils that have:
1. A permeability of twenty inches/hour or more (very rapid permeability) and
2. A water holding capacity of less than 0.06 inch/inch of soil (very low water holding capacity)--
in all horizons to a depth of 80 inches or to bedrock if bedrock is within 80 inches of the surface.
The choice indicates that if a component has soil properties, according to state labeling, favorable for the application of the pesticide Temik 10G, the entry is Yes. If the component does not have favorable properties the entry is No.

Table Physical Name: **component**

Table Label: Component

Column Physical Name: **fltriumph2use** Column Label: FL Triumph

Soil related use restrictions for Triumph 4E Insecticide are applicable in certain conditions in Florida. Please note the label for the conditions. The soil related conditions are as follows:
1. A permeability of six inches/hour or more (rapid or very rapid permeability) and
2. A water holding capacity of 0.10 inch/inch of soil or less (low or very low water holding capacity)--
in all horizons to a depth of 80 inches or to bedrock if bedrock is within 80 inches of the surface.

The choice indicates that if a component has soil properties, according to state labeling, favorable for the application of the pesticide Triumph 4E Insecticide (trademark), the entry is Yes. If the component does not have favorable properties the entry is No.

Column Physical Name: **indraingrp** Column Label: IN Drainage Grp

A group of soils that share similar recommendations for drainage whether the drainage is subsurface or surface. (Agronomy Guide, ID-160 - Purdue University)

Column Physical Name: **innitrateleachi** Column Label: IN NO3 Leach Index

A number which reflects annual precipitation, rainfall distribution, and hydrologic group. The system allows comparison of the amount of nitrate which could be leached in percolating water. The numbers were obtained from the Midwest National Technical Center and are used in Indiana.

Column Physical Name: **misoimgmtgrp** Column Label: MI Soil Mgmt Grp

A system for ranking soils for major uses, developed by Michigan State University. Soils are assigned to a group according to the dominant profile texture, the natural drainage class, and the management groups are listed in the same order as the series named in the complex. (Mokma, D.L., E.P. Whiteside, and J.F. Schneider. 1978. Soil Management Units in Land Use Planning. Mich. State Univ., Ext. Bull. E-1262, 12 pp.

Column Physical Name: **vasoimgtgrp** Column Label: VA Soil Mgmt Grp

A system for ranking soils in Virginia for productivity estimates. Developed by VPI&SU. See Virginia Agronomic Land Use Evaluation System (VALUES) 1993.

Column Physical Name: **mukey** Column Label: Mapunit Key

A non-connotative string of characters used to uniquely identify a record in the Mapunit table.

Column Physical Name: **cokey** Column Label: Component Key

A non-connotative string of characters used to uniquely identify a record in the Component table.

Table Physical Name: **copm**

Table Label: Component Parent Material

Column Physical Name: **pmorder** Column Label: Vertical Order

The sequence in which the parent material occurs, when more than one parent material exists for one soil profile. If only one parent material occurs for a soil, i.e. no lithologic discontinuities, no entry is required.

Column Physical Name: **pmmodifier** Column Label: Textural Modifier

General description of the texture of the parent material. Class limits correspond to those of textural groupings defined in the Soil Survey Manual and family particle-size classes in Soil Taxonomy.

Column Physical Name: **pmgenmod** Column Label: General Modifier

A user specified term(s) used to further describe the nature of the parent material for a given soil.

Column Physical Name: **pmkind** Column Label: Kind

A term describing the general physical, chemical and mineralogical composition of the material, mineral or organic, from which the soil develops. Mode of deposition and/or weathering may be implied or implicit.

Column Physical Name: **pmorigin** Column Label: Origin

The type of bedrock from which the parent material was derived.

Column Physical Name: **copmgrpkey** Column Label: Component Parent Material Group Key

A non-connotative string of characters used to uniquely identify a record in the Component Parent Material Group table.

Column Physical Name: **copmkey** Column Label: Component Parent Material Key

A non-connotative string of characters used to uniquely identify a record in the Component Parent Material table.

Table Physical Name: **copmgrp**

Table Label: Component Parent Material Group

Column Physical Name: **pmgroupname** Column Label: Group Name

Name for the concatenation of PARENT_MATERIAL_MODIFIER, PARENT_MATERIAL_KIND, and PARENT_MATERIAL_ORIGIN for each of the parent materials that may occur in a vertical cross section of a soil.

Column Physical Name: **rvindicator** Column Label: RV?

A yes/no field that indicates if a value or row (set of values) is representative for the component.

Column Physical Name: **cokey** Column Label: Component Key

A non-connotative string of characters used to uniquely identify a record in the Component table.

Column Physical Name: **copmgrpkey** Column Label: Component Parent Material Group Key

A non-connotative string of characters used to uniquely identify a record in the Component Parent Material Group table.

Table Physical Name: **copwindbreak**

Table Label: Component Potential Windbreak

Column Group Label: Height

Column Physical Name: **wndbrkht_l** Column Label: Low
Column Physical Name: **wndbrkht_r** Column Label: RV
Column Physical Name: **wndbrkht_h** Column Label: High

Windbreak tree height at age 20 years.

Column Physical Name: **plantsym** Column Label: Plant Symbol

A unique symbol used to identify a plant genus or a plant species. (The PLANTS Database, USDA-NRCS, National Plant Data Center.)

Column Physical Name: **plantsciname** Column Label: Scientific Name

The full genus and species name as listed in the PLANTS Database, USDA-NRCS, National Plant Data Center.

Column Physical Name: **plantcomname** Column Label: Common Name

A generally accepted common name used for a plant in a geographic region, usually a state.

Column Physical Name: **cokey** Column Label: Component Key

A non-connotative string of characters used to uniquely identify a record in the Component table.

Column Physical Name: **copwindbreakkey** Column Label: Component Potential Windbreak Key

A non-connotative string of characters used to uniquely identify a record in the Component Potential Windbreak table.

Table Physical Name: **corestrictions**

Table Label: Component Restrictions

Column Physical Name: **reskind** — Column Label: Kind

Type of nearly continuous layer that has one or more physical, chemical, or thermal property(ies) that significantly reduce the movement of water and air through the soil or that otherwise provides an unfavorable root environment.

Column Physical Name: **reshard** — Column Label: Hardness

The rupture resistance of air dried and then submerged block-like specimens of mineral material.

Column Group Label: Top Depth

Column Physical Name	Column Label
resdept_l	Low
resdept_r	RV
resdept_h	High

The distance from the soil surface to the upper boundary of the restrictive layer.

Column Group Label: Bottom Depth

Column Physical Name	Column Label
resdepb_l	Low
resdepb_r	RV
resdepb_h	High

The distance from the soil surface to the lower boundary of the restrictive layer.

Column Group Label: Thickness

Column Physical Name	Column Label
resthk_l	Low
resthk_r	RV
resthk_h	High

The distance from the top to bottom of a restrictive layer.

Column Physical Name: **cokey** — Column Label: Component Key

A non-connotative string of characters used to uniquely identify a record in the Component table.

Column Physical Name: **corestrictkey** — Column Label: Component Restrictions Key

A non-connotative string of characters used to uniquely identify a record in the Component Restrictions table.

Table Physical Name: **cosoilmoist**

Table Label: Component Soil Moisture

Column Physical Name		Column Group Label / Column Label	
		Column Group Label:	Top Depth
Column Physical Name:	**soimoistdept_l**	Column Label:	Low
Column Physical Name:	**soimoistdept_r**	Column Label:	RV
Column Physical Name:	**soimoistdept_h**	Column Label:	High

The distance from the top of the soil to the upper boundary of the moisture layer.

		Column Group Label:	Bottom Depth
Column Physical Name:	**soimoistdepb_l**	Column Label:	Low
Column Physical Name:	**soimoistdepb_r**	Column Label:	RV
Column Physical Name:	**soimoistdepb_h**	Column Label:	High

The distance from the top of the soil to the lower boundary of the moisture layer.

Column Physical Name: **soimoiststat** Column Label: Moisture Status

The mean monthly soil water state at a specified depth.

Column Physical Name: **comonthkey** Column Label: Component Month Key

A non-connotative string of characters used to uniquely identify a record in the Component Month table.

Column Physical Name: **cosoilmoistkey** Column Label: Component Soil Moisture Key

A non-connotative string of characters used to uniquely identify a record in the Component Soil Moisture table.

Table Physical Name: **cosoiltemp**

Table Label: Component Soil Temperature

Column Physical Name: **soitempmm** Column Label: Monthly Temp

The long-term monthly average of the mean daily soil temperature of the layer for the month in question. Long-term is generally considered to be a 30-year average.

Column Group Label: Top Depth

Column Physical Name: **soitempdept_l** Column Label: Low

Column Physical Name: **soitempdept_r** Column Label: RV

Column Physical Name: **soitempdept_h** Column Label: High

The distance from the top of the soil to the upper boundary of the soil temperature layer.

Column Group Label: Bottom Depth

Column Physical Name: **soitempdepb_l** Column Label: Low

Column Physical Name: **soitempdepb_r** Column Label: RV

Column Physical Name: **soitempdepb_h** Column Label: High

The distance from the top of the soil to the lower boundary of the soil temperature layer.

Column Physical Name: **comonthkey** Column Label: Component Month Key

A non-connotative string of characters used to uniquely identify a record in the Component Month table.

Column Physical Name: **cosoiltempkey** Column Label: Component Soil Temperature Key

A non-connotative string of characters used to uniquely identify a record in the Component Soil Temperature table.

Table Physical Name: **cosurffrags**
Table Label: Component Surface Fragments

Column Group Label: Cover %
Column Physical Name: **sfragcov_l** Column Label: Low
Column Physical Name: **sfragcov_r** Column Label: RV
Column Physical Name: **sfragcov_h** Column Label: High

Percent of the ground covered by fragments 2 mm or larger (20 mm or larger for wood fragments).

Column Group Label: Spacing
Column Physical Name: **distrocks_l** Column Label: Low
Column Physical Name: **distrocks_r** Column Label: RV
Column Physical Name: **distrocks_h** Column Label: High

Average distance between surface stones and/or boulders, measured between edges.

Column Physical Name: **sfragkind** Column Label: Kind

The lithology/composition of the surface fragments 2 mm or larger (20 mm or larger for wood fragments).

Column Group Label: Size
Column Physical Name: **sfragsize_l** Column Label: Low
Column Physical Name: **sfragsize_r** Column Label: RV
Column Physical Name: **sfragsize_h** Column Label: High

Size based on the multiaxial dimensions of the surface fragment.

Column Physical Name: **sfragshp** Column Label: Shape

A description of the overall shape of the surface fragment.

Column Physical Name: **sfraground** Column Label: Roundness

An expression of the sharpness of edges and corners of surface fragments.

Column Physical Name: **sfraghard** Column Label: Hardness

The hardness of the fragment.

Column Physical Name: **cokey** Column Label: Component Key

A non-connotative string of characters used to uniquely identify a record in the Component table.

Column Physical Name: **cosurffragskey** Column Label: Component Surface Fragments Key

A non-connotative string of characters used to uniquely identify a record in the Component Surface Fragments table.

Table Physical Name: **cosurfmorphgc**

Table Label: Component Three Dimensional Surface Morphometry

Column Physical Name: **geomposmntn** Column Label: Geomorphic Component - Mountains

A mappable part of the earth's surface (three dimensional) that represents an episode of landscape development of mountains.

Column Physical Name: **geomposhill** Column Label: Geomorphic Component - Hills

A mappable part of the earth's surface (three dimensional) that represents an episode of landscape development of hills.

Column Physical Name: **geompostrce** Column Label: Geomorphic Component - Terraces

A mappable part of the earth's surface (three dimensional) that represents an episode of landscape development of terraces.

Column Physical Name: **geomposflats** Column Label: Geomorphic Component - Flats

Description of the geomorphic component for flats.

Column Physical Name: **cogeomdkey** Column Label: Component Geomorphic Description Key

A non-connotative string of characters used to uniquely identify a record in the Component Geomorphic Description table.

Column Physical Name: **cosurfmorgckey** Column Label: Component Surface Morphometry - Geomorphic Component Key

A non-connotative string of characters used to uniquely identify a record in the Component Three Dimensional Surface Morphometry table.

Table Physical Name: **cosurfmorphhpp**

Table Label: Component Two Dimensional Surface Morphometry

Column Physical Name: **hillslopeprof** Column Label: Hillslope Profile

Two dimensional slope segments of a hillslope that have similar geometric, erosional, or depositional characteristics.

Column Physical Name: **cogeomdkey** Column Label: Component Geomorphic Description Key

A non-connotative string of characters used to uniquely identify a record in the Component Geomorphic Description table.

Column Physical Name: **cosurfmorhppkey** Column Label: Component Surface Morphometry - Hillslope Profile Position

A non-connotative string of characters used to uniquely identify a record in the Component Two Dimensional Surface Morphometry table.

Table Physical Name: **cosurfmorphmr**

Table Label: Component Microrelief Surface Morphometry

Column Physical Name: **geomicrorelief** Column Label: Microrelief Kind

The kind of slight variations in the height of a land surface that are too small or intricate to delineate on a topographic or soils map at commonly used scales (1:24000, and 1:10000).

Column Physical Name: **cogeomdkey** Column Label: Component Geomorphic Description Key

A non-connotative string of characters used to uniquely identify a record in the Component Geomorphic Description table.

Column Physical Name: **cosurfmormrkey** Column Label: Component Surface Morphometry - Micro Relief Key

A non-connotative string of characters used to uniquely identify a record in the Component Microrelief Surface Morphometry table.

Table Physical Name: **cosurfmorphss**

Table Label: Component Slope Shape Surface Morphometry

Column Physical Name: **shapeacross** Column Label: Slope Shape Across

The geometric, two dimensional profile (shape) of the slope parallel to elevation contours.

Column Physical Name: **shapedown** Column Label: Slope Shape Up/Down

The longitudinal shape of the slope.

Column Physical Name: **cogeomdkey** Column Label: Component Geomorphic Description Key

A non-connotative string of characters used to uniquely identify a record in the Component Geomorphic Description table.

Column Physical Name: **cosurfmorsskey** Column Label: Component Surface Morphometry - Slope Shape Key

A non-connotative string of characters used to uniquely identify a record in the Component Slope Shape Surface Morphometry table.

Table Physical Name: **cotaxfmmin**

Table Label: Component Taxonomic Family Mineralogy

Column Physical Name: **taxminalogy** Column Label: Mineralogy

Mineralogy classes are used as family differentiae. They are based on the approximate mineralogical composition of selected size fractions of the same segment of the soil (control section) that is used for application of particle-size classes. (Soil Taxonomy)

Column Physical Name: **cokey** Column Label: Component Key

A non-connotative string of characters used to uniquely identify a record in the Component table.

Column Physical Name: **cotaxfmminkey** Column Label: Component Taxonomic Family Mineralogy Key

A non-connotative string of characters used to uniquely identify a record in the Component Taxonomic Family Mineralogy table.

Table Physical Name: **cotaxmoistcl**

Table Label: Component Taxonomic Moisture Class

Column Physical Name: **taxmoistcl** Column Label: Moisture Class

Soil moisture classes are unique to the family classification, though not included specifically in the name, this is a mechanism to provide clear identification of the actual moisture regime.

Column Physical Name: **cokey** Column Label: Component Key

A non-connotative string of characters used to uniquely identify a record in the Component table.

Column Physical Name: **cotaxmckey** Column Label: Component Taxonomic Family Moisture Class Key

A non-connotative string of characters used to uniquely identify a record in the Component Taxonomic Moisture Class table.

Table Physical Name: **cotext**

Table Label: Component Text

Column Physical Name: **recdate** Column Label: Date

The date associated with a particular record, expressed as month, day, year -- xx/xx/xxxx.

Column Physical Name: **comptextkind** Column Label: Kind

A text entry is identified by its kind, category, and subcategory. Kind is the highest division of classification. Text kind provides a grouping of text entries according to their subject matter.

Column Physical Name: **textcat** Column Label: Category

A text entry is identified by its kind, category, and subcategory. Category is a subdivision of kind. "Agr" and "Soi" are two categories for the text kind "Nontechnical Description".

Column Physical Name: **textsubcat** Column Label: Subcategory

A text entry is identified by its kind, category, and subcategory. Subcategory is a subdivision of category. For text kind "Nontechnical" description and text category "Agr", subcategory would correspond to the SSSD field "desnum".

Column Physical Name: **text** Column Label: Text

The actual narrative text portion of a text entry. The other parts of a text entry are its identifiers: kind, category and subcategory.

Column Physical Name: **cokey** Column Label: Component Key

A non-connotative string of characters used to uniquely identify a record in the Component table.

Column Physical Name: **cotextkey** Column Label: Component Text Key

A non-connotative string of characters used to uniquely identify a record in the Component Text table.

Table Physical Name: **cotreestomng**

Table Label: Component Trees To Manage

Column Physical Name: **plantsym** Column Label: Plant Symbol

A unique symbol used to identify a plant genus or a plant species. (The PLANTS Database, USDA-NRCS, National Plant Data Center.)

Column Physical Name: **plantsciname** Column Label: Scientific Name

The full genus and species name as listed in the PLANTS Database, USDA-NRCS, National Plant Data Center.

Column Physical Name: **plantcomname** Column Label: Common Name

A generally accepted common name used for a plant in a geographic region, usually a state.

Column Physical Name: **cokey** Column Label: Component Key

A non-connotative string of characters used to uniquely identify a record in the Component table.

Column Physical Name: **cotreestomngkey** Column Label: Component Trees to Manage Key

A non-connotative string of characters used to uniquely identify a record in the Component Trees To Manage table.

Table Physical Name: **cotxfmother**

Table Label: Component Taxonomic Family Other Criteria

Column Physical Name: **taxfamother** Column Label: Family Other

Soil characteristics other than the defined family characteristics of particle-size classes, mineralogy classes, calcareous and reaction classes, and soil temperature classes. These characteristics include depth of soil, consistence, moisture equivalent, slope of soil, and permanent cracks. (Soil Taxonomy)

Column Physical Name: **cokey** Column Label: Component Key

A non-connotative string of characters used to uniquely identify a record in the Component table.

Column Physical Name: **cotaxfokey** Column Label: Component Taxonomic Family Other Key

A non-connotative string of characters used to uniquely identify a record in the Component Taxonomic Family Other Criteria table.

Table Physical Name: **distinterppmd**

Table Label: Distribution Interp Metadata

Column Physical Name: **rulename** Column Label: Rule Name

A user assigned name (typically connotative) for a particular interpretation rule.

Column Physical Name: **ruledesign** Column Label: Rule Design

An indicator of the design scheme of the rule. The entry provides an indication of which end of the fuzzy value range, 0 or 1, represents the most limiting features.

Most interpretive rules are designed such that the most limiting features are those with a fuzzy value closest to 1. However, interpretive rules that are designed to evaluate the favorable features of a soil, such as the suitability as a gravel source, may be written such that the most limiting features are those with a fuzzy value closest to 0.

Column Physical Name: **ruledesc** Column Label: Description

A narrative text definition of a rule.

Column Physical Name: **dataafuse** Column Label: Ready to use?

Indicates whether or not an object is approved for use.

Column Physical Name: **mrecentrulecwlu** Column Label: Most Recent Rule Component When Last Updated

The date of the most recently updated component of an interpretation. This date is not necessarily the when last updated date of the interpretation itself. An interpretation may have a subrule, evaluation or property that was updated more recently than the master interpretation (rule) itself. The time of update of an interpretation component (subrule, evaluation, property) in NASIS is not explicitly reflected in other components that may reference the updated component.

Column Physical Name: **rulekey** Column Label: Rule Key

The unique identifier of a record in the Rule table in NASIS.

Column Physical Name: **distmdkey** Column Label: Distribution Metadata Key

A non-connotative string of characters used to uniquely identify a record in the Distribution Metadata table.

Column Physical Name: **distinterpmdkey** Column Label: Distribution Interpretation Metadata Key

A non-connotative string of characters used to uniquely identify a record in the Distribution Interp Metadata table.

Table Physical Name: **distlegendmd**

Table Label: Distribution Legend Metadata

Column Physical Name: **areatypename** Column Label: Area Type Name

The name of a particular type of area. Area type names include "state", "county", "mlra", etc.

Column Physical Name: **areasymbol** Column Label: Area Symbol

A symbol that uniquely identifies a single occurrence of a particular type of area (e.g. Lancaster Co., Nebraska is NE109).

Column Physical Name: **areaname** Column Label: Area Name

The name given to the specified geographic area.

Column Physical Name: **ssastatus** Column Label: Survey Status

Identifies the operational activity of a soil survey area and currency of published soil information. Examples are Non-Project, Update and Published.

As of SSURGO version 2.1, values for this attribute are no longer provided. This attribute will be dropped from the next major SSURGO version.

Column Physical Name: **cordate** Column Label: Correlation Date

The date the final correlation document for a soil survey is signed, expressed as month, year (e.g. 07/1999).

Column Physical Name: **exportcertstatus** Column Label: Export Certification Status

The level of certification assigned to a tabular data package for a particular soil survey area.

Column Physical Name: **exportcertdate** Column Label: Export Certification Date

The date and time that soil survey area tabular data was exported from NASIS.

Column Physical Name: **exportmetadata** Column Label: Export Metadata

Narrative text notes (metadata) associated with the assignment of the tabular data certification status for a particular soil survey area.

Column Physical Name: **lkey** Column Label: Legend Key

A non-connotative string of characters used to uniquely identify a record in the Legend table.

Column Physical Name: **distmdkey** Column Label: Distribution Metadata Key

A non-connotative string of characters used to uniquely identify a record in the Distribution Metadata table.

Column Physical Name: **distlegendmdkey** Column Label: Distribution Legend Metadata Key

A non-connotative string of characters used to uniquely identify a record in the Distribution Legend Metadata table.

Table Physical Name: **distmd**

Table Label: Distribution Metadata

Column Physical Name: **distgendate** Column Label: Distribution Generation Date

The date and time that a request to export data, which was submitted by a NASIS user, was actually processed.

Column Physical Name: **diststatus** Column Label: Distribution Status

The current status of a NASIS export request. This status may reflect either a pending request status or a processed request status.

Column Physical Name: **interpmaxreasons** Column Label: Interpretation Maximum Reasons

The maximum number of reasons recorded for the corresponding soil interpretation.

Column Physical Name: **distmdkey** Column Label: Distribution Metadata Key

A non-connotative string of characters used to uniquely identify a record in the Distribution Metadata table.

Table Physical Name: **featdesc**

Table Label: Feature Description

Column Physical Name: **areasymbol** Column Label: Area Symbol

A symbol that uniquely identifies a single occurrence of a particular type of area (e.g. Lancaster Co., Nebraska is NE109).

Column Physical Name: **spatialversion** Column Label: Spatial Version

A sequential integer number used to denote the serial version of the spatial data for a soil survey area.

Column Physical Name: **featsym** Column Label: Feature Symbol

A symbol that, within the context of a particular soil survey area, uniquely identifies a point or line spot feature.

Column Physical Name: **featname** Column Label: Feature Name

A short descriptive name of a point or line spot feature.

Column Physical Name: **featdesc** Column Label: Feature Description

A narrative description of a point or line spot feature.

Column Physical Name: **featkey** Column Label: Feature Key

A non-connotative string of characters used to uniquely identify a record in the Feature Description table.

Table Physical Name: **featline**

Table Label: Feature Line

Column Physical Name: **areasymbol** Column Label: Area Symbol

A symbol that uniquely identifies a single occurrence of a particular type of area (e.g. Lancaster Co., Nebraska is NE109).

Column Physical Name: **spatialversion** Column Label: Spatial Version

A sequential integer number used to denote the serial version of the spatial data for a soil survey area.

Column Physical Name: **featsym** Column Label: Feature Symbol

A symbol that, within the context of a particular soil survey area, uniquely identifies a point or line spot feature.

Column Physical Name: **featkey** Column Label: Feature Key

A non-connotative string of characters used to uniquely identify a record in the Feature Description table.

Table Physical Name: **featpoint**

Table Label: Feature Point

Column Physical Name: **areasymbol** Column Label: Area Symbol

A symbol that uniquely identifies a single occurrence of a particular type of area (e.g. Lancaster Co., Nebraska is NE109).

Column Physical Name: **spatialversion** Column Label: Spatial Version

A sequential integer number used to denote the serial version of the spatial data for a soil survey area.

Column Physical Name: **featsym** Column Label: Feature Symbol

A symbol that, within the context of a particular soil survey area, uniquely identifies a point or line spot feature.

Column Physical Name: **featkey** Column Label: Feature Key

A non-connotative string of characters used to uniquely identify a record in the Feature Description table.

Table Physical Name: **laoverlap**
Table Label: Legend Area Overlap

Column Physical Name: **areatypename** Column Label: Area Type Name

The name of a particular type of area. Area type names include "state", "county", "mlra", etc.

Column Physical Name: **areasymbol** Column Label: Area Symbol

A symbol that uniquely identifies a single occurrence of a particular type of area (e.g. Lancaster Co., Nebraska is NE109).

Column Physical Name: **areaname** Column Label: Area Name

The name given to the specified geographic area.

Column Physical Name: **areaovacres** Column Label: Overlap Acres

The area overlap of two geographic regions, in acres.

Column Physical Name: **lkey** Column Label: Legend Key

A non-connotative string of characters used to uniquely identify a record in the Legend table.

Column Physical Name: **lareaovkey** Column Label: Legend Area Overlap Key

A non-connotative string of characters used to uniquely identify a record in the Legend Area Overlap table.

Table Physical Name: **legend**

Table Label: Legend

Column Physical Name: **areatypename** Column Label: Area Type Name

The name of a particular type of area. Area type names include "state", "county", "mlra", etc.

Column Physical Name: **areasymbol** Column Label: Area Symbol

A symbol that uniquely identifies a single occurrence of a particular type of area (e.g. Lancaster Co., Nebraska is NE109).

Column Physical Name: **areaname** Column Label: Area Name

The name given to the specified geographic area.

Column Physical Name: **areaacres** Column Label: Area Acres

The acreage total of all land and water areas in the specified geographic area.

Column Physical Name: **mlraoffice** Column Label: MLRA Office

An NRCS business unit responsible for oversight of soil survey production activities of a particular soil survey area.

Column Physical Name: **legenddesc** Column Label: Legend Description

A short text field used to describe a particular soil survey area legend.

Column Physical Name: **ssastatus** Column Label: Survey Status

Identifies the operational activity of a soil survey area and currency of published soil information. Examples are Non-Project, Update and Published.

As of SSURGO version 2.1, values for this attribute are no longer provided. This attribute will be dropped from the next major SSURGO version.

Column Physical Name: **mouagncyresp** Column Label: MOU Agency Responsible

The lead agency designated as responsible for a particular soil survey.

Column Physical Name: **projectscale** Column Label: Project Scale

The map scale in which the final map products will be published, expressed as the denominator of the scale, i.e. 24000 = 1:24000.

Column Physical Name: **cordate** Column Label: Correlation Date

The date the final correlation document for a soil survey is signed, expressed as month, year (e.g. 07/1999).

Column Physical Name: **ssurgoarchived** Column Label: SSURGO Archived

The date on which the SSURGO product for a particular soil survey is actually archived, expressed as month, day, year -- xx/xx/xxxx.

Column Physical Name: **legendsuituse** Column Label: Geographic Applicability

Identifies the relative geographic extent over which a legend has the most up-to-date soil survey data.

As of SSURGO version 2.1, values for this attribute are no longer provided. This attribute will be dropped from the next major SSURGO version.

Table Physical Name: **legend**

Table Label: Legend

Column Physical Name: **legendcertstat** Column Label: Legend Certification Status

The level of certification assigned to a legend. Intended to indicate whether or not the legend should be used and the degree of confidence with which it may be used.

As of SSURGO version 2.1, values for this attribute are no longer provided. This attribute will be dropped from the next major SSURGO version.

Column Physical Name: **lkey** Column Label: Legend Key

A non-connotative string of characters used to uniquely identify a record in the Legend table.

Table Physical Name: **legendtext**

Table Label: Legend Text

Column Physical Name: **recdate** Column Label: Date

The date associated with a particular record, expressed as month, day, year -- xx/xx/xxxx.

Column Physical Name: **legendtextkind** Column Label: Kind

A text entry can be identified by its kind, category, and subcategory. Kind is the highest division of classification. Text kind provides a grouping of text entries according to their subject matter.

Column Physical Name: **textcat** Column Label: Category

A text entry is identified by its kind, category, and subcategory. Category is a subdivision of kind. "Agr" and "Soi" are two categories for the text kind "Nontechnical Description".

Column Physical Name: **textsubcat** Column Label: Subcategory

A text entry is identified by its kind, category, and subcategory. Subcategory is a subdivision of category. For text kind "Nontechnical" description and text category "Agr", subcategory would correspond to the SSSD field "desnum".

Column Physical Name: **text** Column Label: Text

The actual narrative text portion of a text entry. The other parts of a text entry are its identifiers: kind, category and subcategory.

Column Physical Name: **lkey** Column Label: Legend Key

A non-connotative string of characters used to uniquely identify a record in the Legend table.

Column Physical Name: **legtextkey** Column Label: Legend Text Key

A non-connotative string of characters used to uniquely identify a record in the Legend Text table.

Table Physical Name: **mapunit**
Table Label: Mapunit

Column Physical Name: **musym** Column Label: Mapunit Symbol

The symbol used to uniquely identify the soil mapunit in the soil survey.

Column Physical Name: **muname** Column Label: Mapunit Name

Correlated name of the mapunit (recommended name or field name for surveys in progress).

Column Physical Name: **mukind** Column Label: Kind

Code identifying the kind of mapunit. Example: C - consociation.

Column Physical Name: **mustatus** Column Label: Status

Identifies the current status of the map unit.

As of SSURGO version 2.1, values for this attribute are no longer provided. This attribute will be dropped from the next major SSURGO version.

Column Physical Name: **muacres** Column Label: Total Acres

The number of acres of a particular mapunit.

Column Group Label: Linear Feature Width
Column Physical Name: **mapunitlfw_l** Column Label: Low
Column Physical Name: **mapunitlfw_r** Column Label: RV
Column Physical Name: **mapunitlfw_h** Column Label: High

The approximate width of a particular map unit delineation represented by a linear soil feature on a soil map.

Column Group Label: Point Feature Area
Column Physical Name: **mapunitpfa_l** Column Label: Low
Column Physical Name: **mapunitpfa_r** Column Label: RV
Column Physical Name: **mapunitpfa_h** Column Label: High

The approximate area of a particular map unit delineation represented by a point feature on a soil map.

Column Physical Name: **farmlndcl** Column Label: Farm Class

Identification of map units as prime farmland, farmland of statewide importance, or farmland of local importance.

Column Physical Name: **muhelcl** Column Label: HEL

The overall Highly Erodible Lands (HEL) classification for the mapunit based on the rating of its components for wind and water HEL classification.

Column Physical Name: **muwathelcl** Column Label: HEL Water

The Highly Erodible Lands (HEL) classification for the mapunit based on the rating of its components for water HEL classification.

Column Physical Name: **muwndhelcl** Column Label: HEL Wind

The Highly Erodible Lands (HEL) classification for the mapunit based on the rating of its components for wind HEL classification.

Table Physical Name: **mapunit**

Table Label: Mapunit

Column Physical Name: **interpfocus** Column Label: Interpretive Focus

The targeted landuse for which the Map Unit was developed. The properties of included mapunit components are tailored towards this landuse.

Column Physical Name: **invesintens** Column Label: Order of Mapping

The level of detail and relative intensity of field observation under which the map unit was developed. Order 1 indicates the highest intensity, and order 5 the lowest.

Column Physical Name: **iacornsr** Column Label: IA CSR

Corn Suitability Rating (CSR) is an index procedure developed in Iowa to rate each different kind of soil for its row-crop productivity.

Column Physical Name: **nhiforsoigrp** Column Label: NH Forest Soil Grp

Interpretative class for the map unit, based on NH developed interpretations.

Column Physical Name: **nhspiagr** Column Label: NH SPI Agr

New Hampshire Soil Potential Index for Agriculture, 1992 revision. Used for computation of weighted average SPI on a parcel of land for adjustment of current use land assessment.

Column Physical Name: **vtsepticsyscl** Column Label: VT Septic System

The interpretive separations, or class, based on the ability of the map unit to support an onsite septic system. (Ancillary Soil Interpretation Ratings For On-site Sewerage Disposal in Vermont)

Column Physical Name: **mucertstat** Column Label: Map Unit Certification Status

The level of certification assigned to a map unit. Intended to indicate whether or not the map unit should be used and the degree of confidence with which it may be used.

As of SSURGO version 2.1, values for this attribute are no longer provided. This attribute will be dropped from the next major SSURGO version.

Column Physical Name: **lkey** Column Label: Legend Key

A non-connotative string of characters used to uniquely identify a record in the Legend table.

Column Physical Name: **mukey** Column Label: Mapunit Key

A non-connotative string of characters used to uniquely identify a record in the Mapunit table.

Table Physical Name: **mdstatdomdet**

Table Label: Domain Detail Static Metadata

Column Physical Name: **domainname** Column Label: Domain Name

The name of the domain to which a column's values are restricted. A domain is a finite list of character strings that a column's value may assume.

Column Physical Name: **choicesequence** Column Label: Choice Sequence

Specifies the sequence in which the members of a domain should be ordered or displayed.

Column Physical Name: **choice** Column Label: Choice

A character string that represents a member of a domain. This value must be unique for every member of a given domain.

Column Physical Name: **choicedesc** Column Label: Choice Description

The narrative text description or definition of a member of a domain.

Column Physical Name: **choiceobsolete** Column Label: Obsolete Choice?

Indicates if a choice in a choice list or domain is considered "obsolete". If obsolete, data being currently populated would likely use a different choice.

Table Physical Name: **mdstatdommas**

Table Label: Domain Master Static Metadata

Column Physical Name: **domainname** Column Label: Domain Name

The name of the domain to which a column's values are restricted. A domain is a finite list of character strings that a column's value may assume.

Column Physical Name: **domainmaxlen** Column Label: Domain Maximum Length

The number of characters in the longest member of a domain. Each member of a domain is an ASCII character string consisting of at least 1 but no more than 254 characters.

Table Physical Name: **mdstatidxdet**

Table Label: Index Detail Static Metadata

Column Physical Name: **tabphyname** Column Label: Table Physical Name

The name that is used to physically implement a table in a database management system. In a database, each table's physical name must be unique.

Column Physical Name: **idxphyname** Column Label: Index Physical Name

The name that is used to physically implement an index in a database management system.

Column Physical Name: **idxcolsequence** Column Label: Index Column Sequence

Specifies the sequence of a column in a database table index.

Column Physical Name: **colphyname** Column Label: Column Physical Name

The name that is used to physically implement a table column in a database management system. In a database table, each column's physical name must be unique.

SSURGO 2.3.2
Table Column Descriptions

Table Physical Name: **mdstatidxmas**

Table Label: Index Master Static Metadata

Column Physical Name: **tabphyname** Column Label: Table Physical Name

The name that is used to physically implement a table in a database management system. In a database, each table's physical name must be unique.

Column Physical Name: **idxphyname** Column Label: Index Physical Name

The name that is used to physically implement an index in a database management system.

Column Physical Name: **uniqueindex** Column Label: Unique Index?

Indicates whether or not all values of an index must be unique, or whether duplicate values may exist.

Table Physical Name: **mdstatrshipdet**

Table Label: Relationship Detail Static Metadata

Column Physical Name: **ltabphyname** Column Label: Left Table Physical Name

The physical name of a table on the left side of a relationship between two tables.

Column Physical Name: **rtabphyname** Column Label: Right Table Physical Name

The physical name of a table on the right side of a relationship between two tables.

Column Physical Name: **relationshipname** Column Label: Relationship Name

A name given to a relationship between two tables. If there is more than one relationship between the same two tables, the name of each of those relationships must be unique.

Column Physical Name: **ltabcolphyname** Column Label: Left Table Column Physical Name

The physical name of a column of a table on the left side of a relationship between two tables. This column is one of several potential columns used to create a join between the two tables involved in a relationship. The left table column joins to its corresponding right table column.

Column Physical Name: **rtabcolphyname** Column Label: Right Table Column Physical Name

The physical name of a column of a table on the right side of a relationship between two tables. This column is one of several potential columns used to create a join between the two tables involved in a relationship. The right table column joins to its corresponding left table column.

Table Physical Name: **mdstatrshipmas**

Table Label: Relationship Master Static Metadata

Column Physical Name: **ltabphyname** Column Label: Left Table Physical Name

The physical name of a table on the left side of a relationship between two tables.

Column Physical Name: **rtabphyname** Column Label: Right Table Physical Name

The physical name of a table on the right side of a relationship between two tables.

Column Physical Name: **relationshipname** Column Label: Relationship Name

A name given to a relationship between two tables. If there is more than one relationship between the same two tables, the name of each of those relationships must be unique.

Column Physical Name: **cardinality** Column Label: Cardinality

Indicates whether the relationship between the left table and right table is one to one (left is one, right is one) or one to many (left is one, right is many). For a one to one relationship, a record in the left table is related to no more than one record in the right table. For a one to many relationship, a record in the left table may be related to more than one record in the right table. Neither cardinality implies that a record in the left table necessarily has a corresponding record in the right table.

Column Physical Name: **mandatory** Column Label: Mandatory?

Indicates if in order for a record to exist in the right table of a relationship, a corresponding record must exist in the left table of that relationship, i.e. mandatory = "yes". In other words, when mandatory is "no", a record may exist in the right table of a relationship without having a corresponding record in the left table of that relationship.

Table Physical Name: **mdstattabcols**

Table Label: Table Column Static Metadata

Column Physical Name: **tabphyname** Column Label: Table Physical Name

The name that is used to physically implement a table in a database management system. In a database, each table's physical name must be unique.

Column Physical Name: **colsequence** Column Label: Column Sequence

Specifies the sequence of the columns in a database table.

Column Physical Name: **colphyname** Column Label: Column Physical Name

The name that is used to physically implement a table column in a database management system. In a database table, each column's physical name must be unique.

Column Physical Name: **collogname** Column Label: Column Logical Name

A name associated with a column that is more connotative than the column's corresponding physical name. For a SSURGO table, every column's logical name must be unique, making a column's logical name a suitable alias for identifying a column. For SSURGO, column logical names are lower case character strings with no embedded blanks, where individual parts of the logical name may be separated using the underscore character.

Column Physical Name: **collabel** Column Label: Column Label

A descriptive label associated with a column. For a SSURGO table, every column's label must be unique, making a column's label a suitable alias for identifying a column. For SSURGO, column labels are typically mixed case character strings with embedded blanks.

Column Physical Name: **logicaldatatype** Column Label: Logical Data Type

A column's logical data type is its generic, software independent data type. Since the SSURGO standard does not correspond to any specific database management system (DBMS), the SSURGO metadata records only logical data types. How a logical data type can be physically implemented varies from DBMS to DBMS.

Column Physical Name: **notnull** Column Label: Not Null?

Indicates whether or not the value of a column in a database table may be null.

Column Physical Name: **fieldsize** Column Label: Field Size

The maximum allowable length of a column whose logical data type is "string".

Column Physical Name: **precision** Column Label: Precision

The number of decimal digits that should be displayed for a column whose logical data type is "float".

Column Physical Name: **minimum** Column Label: Minimum

The minimum allowable value of a column.

Column Physical Name: **maximum** Column Label: Maximum

The maximum allowable value of a column.

Column Physical Name: **uom** Column Label: Unit of Measure

The units of measure in which a column is recorded.

Table Physical Name: **mdstattabcols**

Table Label: Table Column Static Metadata

Column Physical Name: **domainname** Column Label: Domain Name

The name of the domain to which a column's values are restricted. A domain is a finite list of character strings that a column's value may assume.

Column Physical Name: **coldesc** Column Label: Column Description

The narrative text description or definition of a column.

Table Physical Name: **mdstattabs**

Table Label: Table Static Metadata

Column Physical Name: **tabphyname** Column Label: Table Physical Name

The name that is used to physically implement a table in a database management system. In a database, each table's physical name must be unique.

Column Physical Name: **tablogname** Column Label: Table Logical Name

A name associated with a database table that is more connotative than the table's corresponding physical name. For SSURGO, every table's logical name must be unique, making a table's logical name a suitable alias for identifying a table. For SSURGO, table logical names are lower case character strings with no embedded blanks, where individual parts of the logical name may be separated using the underscore character.

Column Physical Name: **tablabel** Column Label: Table Label

A descriptive label associated with a database table. For SSURGO, every table's label must be unique, making a table's label a suitable alias for identifying a table. For SSURGO, table labels are typically mixed case character strings with embedded blanks.

Column Physical Name: **tabdesc** Column Label: Table Description

A narrative text description of what a database table represents or records.

Column Physical Name: **iefilename** Column Label: Import/Export File Name

The base part of the file name of a table's associated ASCII pipe delimited import/export file. The complete name of a table's associated import/export file is the base name followed by the characters ".txt". For example, if the base name is "alpha", the name of the associated import/export file is "alpha.txt".

Table Physical Name: **month**

Table Label: Month

Column Physical Name: **monthseq** Column Label: Month Sequence

An interger number used to sequence the months of the year in their proper order.

Column Physical Name: **monthname** Column Label: Month Name

The full name of one of the twelve months of the year.

Table Physical Name: **muaggatt**

Table Label: Mapunit Aggregated Attribute

Column Physical Name: **musym** Column Label: Mapunit Symbol

The symbol used to uniquely identify the soil mapunit in the soil survey.

Column Physical Name: **muname** Column Label: Mapunit Name

Correlated name of the mapunit (recommended name or field name for surveys in progress).

Column Physical Name: **mustatus** Column Label: Status

Identifies the current status of the map unit.

As of SSURGO version 2.1, values for this attribute are no longer provided. This attribute will be dropped from the next major SSURGO version.

Column Physical Name: **slopegraddcp** Column Label: Slope Gradient - Dominant Component

The difference is elevation between two points, expressed as a percentage of the distance between those points. This column displays the slope gradient of the dominant component of the map unit based on composition percentage.

Column Physical Name: **slopegradwta** Column Label: Slope Gradient - Weighted Average

The difference is elevation between two points, expressed as a percentage of the distance between those points. This column displays the weighted average slope gradient of all components in the map unit.

Column Physical Name: **brockdepmin** Column Label: Bedrock Depth - Minimum

The distance from the soil surface to the top of a bedrock layer, expressed as a shallowest depth of components whose composition in the map unit is equal to or exceeds 15%.

Column Physical Name: **wtdepannmin** Column Label: Water Table Depth - Annual - Minimum

The shallowest depth to a wet soil layer (water table) at any time during the year expressed as centimeters from the soil surface, for components whose composition in the map unit is equal to or exceeds 15%.

Column Physical Name: **wtdepaprjunmin** Column Label: Water Table Depth - April - June - Minimum

The shallowest depth to a wet soil layer (water table) during the months of April through June expressed in centimeters from the soil surface for components whose composition in the map unit is equal to or exceeds 15%.

Column Physical Name: **flodfreqdcd** Column Label: Flooding Frequency - Dominant Condition

The annual probability of a flood event expressed as a class. This column displays the dominant flood frequency class for the map unit, based on composition percentage of map unit components whose composition in the map unit is equal to or exceeds 15%.

Column Physical Name: **flodfreqmax** Column Label: Flooding Frequency - Maximum

The annual probability of a flood event expressed as a class. This column displays the highest probability class assigned to an individual component of the map unit whose composition in the map unit is equal to or exceeds 15%.

Column Physical Name: **pondfreqprs** Column Label: Ponding Frequency - Presence

The percentage of the map unit that is subject to water being ponded on the soil surface, expressed as one of four classes; 0-14%, 15-49%, 50-74% or 75-100%.

Table Physical Name: **muaggatt**

Table Label: Mapunit Aggregated Attribute

Column Physical Name: **aws025wta** Column Label: Available Water Storage 0-25 cm - Weighted Average

Available water storage (AWS). The volume of water that the soil, to a depth of 25 centimeters, can store that is available to plants. It is reported as the weighted average of all components in the map unit, and is expressed as centimeters of water.

AWS is calculated from AWC (available water capacity) which is commonly estimated as the difference between the water contents at 1/10 or 1/3 bar (field capacity) and 15 bars (permanent wilting point) tension, and adjusted for salinity and fragments.

Column Physical Name: **aws050wta** Column Label: Available Water Storage 0-50 cm - Weighted Average

Available water storage (AWS). The volume of water that the soil, to a depth of 50 centimeters, can store that is available to plants. It is reported as the weighted average of all components in the map unit, and is expressed as centimeters of water.

AWS is calculated from AWC (available water capacity) which is commonly estimated as the difference between the water contents at 1/10 or 1/3 bar (field capacity) and 15 bars (permanent wilting point) tension, and adjusted for salinity and fragments.

Column Physical Name: **aws0100wta** Column Label: Available Water Storage 0-100 cm - Weighted Average

Available water storage (AWS). The volume of water that the soil, to a depth of 100 centimeters, can store that is available to plants. It is reported as the weighted average of all components in the map unit, and is expressed as centimeters of water.

AWS is calculated from AWC (available water capacity) which is commonly estimated as the difference between the water contents at 1/10 or 1/3 bar (field capacity) and 15 bars (permanent wilting point) tension, and adjusted for salinity and fragments.

Column Physical Name: **aws0150wta** Column Label: Available Water Storage 0-150 cm - Weighted Average

Available water storage (AWS). The volume of water that the soil, to a depth of 150 centimeters, can store that is available to plants. It is reported as the weighted average of all components in the map unit, and is expressed as centimeters of water.

AWS is calculated from AWC (available water capacity) which is commonly estimated as the difference between the water contents at 1/10 or 1/3 bar (field capacity) and 15 bars (permanent wilting point) tension, and adjusted for salinity and fragments.

Column Physical Name: **drclassdcd** Column Label: Drainage Class - Dominant Condition

The natural drainage condition of the soil refers to the frequency and duration of wet periods. This column displays the dominant drainage class for the map unit, based on composition percentage of each map unit component.

Column Physical Name: **drclasswettest** Column Label: Drainage Class - Wettest

The natural drainage condition of the soil refers to the frequency and duration of wet periods. This column displays the wettest drainage class assigned to an individual component of the map unit whose composition in the map unit is equal to or exceeds 15%.

Column Physical Name: **hydgrpdcd** Column Label: Hydrologic Group - Dominant Conditions

Hydrologic Group is a grouping of soils that have similar runoff potential under similar storm and cover conditions. This column displays the dominant hydrologic group for the map unit, based on composition percentage of each map unit component.

Column Physical Name: **iccdcd** Column Label: Irrigated Capability Class - Dominant Condition

The broadest category in the land capability classification system for soils. This column displays the dominant capability class, under irrigated conditions, for the map unit based on composition percentage of all components in the map unit.

Table Physical Name: **muaggatt**

Table Label: Mapunit Aggregated Attribute

Column Physical Name: **iccdcdpct** Column Label: Irrigated Capability Class - Dominant Condition Aggregate Percent

The percent composition of the map unit that has the capability class displayed in the Irrigated Capability Class

Column Physical Name: **niccdcd** Column Label: Non-Irrigated Capability Class - Dominant Condition

The broadest category in the land capability classification system for soils. This column displays the dominant capability class, under non-irrigated conditions, for the map unit based on composition percentage of all components in the map unit.

Column Physical Name: **niccdcdpct** Column Label: Non-Irrigated Capability Class - Dominant Condition Aggregate Percent

The percent composition of the map unit that has the capability class displayed in the Non-Irrigated Capability Class - Dominant Condition column.

Column Physical Name: **engdwobdcd** Column Label: ENG - Dwellings W/O Basements - Dominant Condition

The rating of the map unit as a site for dwellings without basements, expressed as the dominant rating class for the map unit, based on composition percentage of each map unit component.

Column Physical Name: **engdwbdcd** Column Label: ENG - Dwellings with Basements - Dominant Condition

The rating of the map unit as a site for dwellings with basements, expressed as the dominant rating class for the map unit, based on composition percentage of each map unit component.

Column Physical Name: **engdwbll** Column Label: ENG - Dwellings with Basements - Least Limiting

The rating of the map unit as a site for dwellings with basements, expressed as the least limiting rating class for the map unit, based on the evaluation of each component in the map unit.

Column Physical Name: **engdwbml** Column Label: ENG - Dwellings with Basements - Most Limiting

The rating of the map unit as a site for dwellings with basements, expressed as the most limiting rating class for the map unit, based on the evaluation of each component in the map unit.

Column Physical Name: **engstafdcd** Column Label: ENG - Septic Tank Absorption Fields - Dominant Condition

The rating of the map unit as a site for septic tank absorption fields, expressed as the dominant rating class for the map unit, based on composition percentage of each map unit component.

Column Physical Name: **engstafll** Column Label: ENG - Septic Tank Absorption Fields - Least Limiting

The rating of the map unit as a site for septic tank absorption fields, expressed as the least limiting rating class for the map unit, based on the evaluation of each component in the map unit.

Column Physical Name: **engstafml** Column Label: ENG - Septic Tank Absorption Fields - Most Limiting

The rating of the map unit as a site for septic tank absorption fields, expressed as the most limiting rating class for the map unit, based on the evaluation of each component in the map unit.

Table Physical Name: **muaggatt**

Table Label: Mapunit Aggregated Attribute

Column Physical Name: **engsldcd** Column Label: ENG - Sewage Lagoons - Dominant Condition

The rating of the map unit as a site for sewage lagoons, expressed as the dominant rating class for the map unit, based on composition percentage of each map unit component.

Column Physical Name: **engsldcp** Column Label: ENG - Sewage Lagoons - Dominant Component

The rating of the map unit as a site for sewage lagoons, expressed as the rating class for the dominant component in the map unit, based on composition percentage of each map unit component.

Column Physical Name: **englrsdcd** Column Label: ENG - Local Roads and Streets - Dominant Condition

The rating of the map unit as a site for local roads and streets, expressed as the dominant rating class for the map unit, based on composition percentage of each map unit component.

Column Physical Name: **engcmssdcd** Column Label: ENG - Construction Materials; Sand Source - Dominant Condition

The rating of the map unit as a source of sand, expressed as the dominant class for the map unit, based on composition percentage of each map unit component.

Column Physical Name: **engcmssmp** Column Label: ENG - Construction Materials; Sand Source - Most Probable

The rating of the map unit as a source of sand, expressed as the most probable class for the map unit, based on the evaluation of each component whose composition in the map unit is equal to or exceeds 15%.

Column Physical Name: **urbrecptdcd** Column Label: URB/REC - Paths and Trails - Dominant Condition

The rating of the map unit as a site for paths and trails, expressed as the dominant rating class for the map unit, based on composition percentage of each map unit component.

Column Physical Name: **urbrecptwta** Column Label: URB/REC - Paths and Trails - Weighted Average

The relative rating of the map unit for use as paths and trails, expressed as a weighted average of numerical ratings for individual soil components in the map unit. The ratings are on a scale of 0.0 to 1.0, with the higher values indicating more limitations.

Column Physical Name: **forpehrtdcp** Column Label: FOR - Potential Erosion Hazard (Road/Trail) - Dominant Component

The relative potential erosion hazard for the map unit when used as a site for forest roads and trails, expressed as the rating class for the dominant component in the map unit, based on composition percentage of each map unit component.

Column Physical Name: **hydclprs** Column Label: Hydric Classification - Presence

An indication of the proportion of the map unit, expressed as a class, that is "hydric", based on the hydric classification of individual map unit components.

Column Physical Name: **awmmfpwwta** Column Label: AWM - Manure and Food Processing Waste - Weighted Average

The relative rating of the map unit for use as a disposal site of Manure and Food Processing Wastes, expressed as a weighted average of numerical ratings for individual components in the map unit. The ratings are on a scale of 0.0 to 1.0, with the higher values indicating increasing limitations.

Table Physical Name: **muaggatt**

Table Label: Mapunit Aggregated Attribute

Column Physical Name: **mukey** Column Label: Mapunit Key

A non-connotative string of characters used to uniquely identify a record in the Mapunit table.

Table Physical Name: **muaoverlap**

Table Label: Mapunit Area Overlap

Column Physical Name: **areaovacres** Column Label: Overlap Acres

The area overlap of two geographic regions, in acres.

Column Physical Name: **lareaovkey** Column Label: Legend Area Overlap Key

A non-connotative string of characters used to uniquely identify a record in the Legend Area Overlap table.

Column Physical Name: **mukey** Column Label: Mapunit Key

A non-connotative string of characters used to uniquely identify a record in the Mapunit table.

Column Physical Name: **muareaovkey** Column Label: Mapunit Area Overlap Key

A non-connotative string of characters used to uniquely identify a record in the Mapunit Area Overlap table.

Table Physical Name: **mucropyld**

Table Label: Mapunit Crop Yield

Column Physical Name: **cropname** — Column Label: Crop Name

The common name for the crop.

Column Physical Name: **yldunits** — Column Label: Units

Crop yield units per unit area for the specified crop.

Column Group Label: Nirr Yield

Column Physical Name: **nonirryield_l** — Column Label: Low
Column Physical Name: **nonirryield_r** — Column Label: RV
Column Physical Name: **nonirryield_h** — Column Label: High

The expected yield per acre of the specific crop without supplemental irrigation.

Column Group Label: Irr Yield

Column Physical Name: **irryield_l** — Column Label: Low
Column Physical Name: **irryield_r** — Column Label: RV
Column Physical Name: **irryield_h** — Column Label: High

The expected yield per acre of the specific crop with irrigation.

Column Physical Name: **mukey** — Column Label: Mapunit Key

A non-connotative string of characters used to uniquely identify a record in the Mapunit table.

Column Physical Name: **mucrpyldkey** — Column Label: Mapunit Crop Yield Key

A non-connotative string of characters used to uniquely identify a record in the Mapunit Crop Yield table.

Table Physical Name: **muline**

Table Label: Mapunit Line

Column Physical Name: **areasymbol** Column Label: Area Symbol

A symbol that uniquely identifies a single occurrence of a particular type of area (e.g. Lancaster Co., Nebraska is NE109).

Column Physical Name: **spatialversion** Column Label: Spatial Version

A sequential integer number used to denote the serial version of the spatial data for a soil survey area.

Column Physical Name: **musym** Column Label: Mapunit Symbol

The symbol used to uniquely identify the soil mapunit in the soil survey.

Column Physical Name: **mukey** Column Label: Mapunit Key

A non-connotative string of characters used to uniquely identify a record in the Mapunit table.

Table Physical Name: **mupoint**

Table Label: Mapunit Point

Column Physical Name: **areasymbol** Column Label: Area Symbol

A symbol that uniquely identifies a single occurrence of a particular type of area (e.g. Lancaster Co., Nebraska is NE109).

Column Physical Name: **spatialversion** Column Label: Spatial Version

A sequential integer number used to denote the serial version of the spatial data for a soil survey area.

Column Physical Name: **musym** Column Label: Mapunit Symbol

The symbol used to uniquely identify the soil mapunit in the soil survey.

Column Physical Name: **mukey** Column Label: Mapunit Key

A non-connotative string of characters used to uniquely identify a record in the Mapunit table.

Table Physical Name: **mupolygon**

Table Label: Mapunit Polygon

Column Physical Name: **areasymbol** Column Label: Area Symbol

A symbol that uniquely identifies a single occurrence of a particular type of area (e.g. Lancaster Co., Nebraska is NE109).

Column Physical Name: **spatialversion** Column Label: Spatial Version

A sequential integer number used to denote the serial version of the spatial data for a soil survey area.

Column Physical Name: **musym** Column Label: Mapunit Symbol

The symbol used to uniquely identify the soil mapunit in the soil survey.

Column Physical Name: **mukey** Column Label: Mapunit Key

A non-connotative string of characters used to uniquely identify a record in the Mapunit table.

Table Physical Name: **mutext**

Table Label: Mapunit Text

Column Physical Name: **recdate** Column Label: Date

The date associated with a particular record, expressed as month, day, year -- xx/xx/xxxx.

Column Physical Name: **mapunittextkind** Column Label: Kind

Text kind provides a grouping of text entries according to their subject matter. For example, the text kind "edit notes" groups text entries that deal with adding or changing data.

Column Physical Name: **textcat** Column Label: Category

A text entry is identified by its kind, category, and subcategory. Category is a subdivision of kind. "Agr" and "Soi" are two categories for the text kind "Nontechnical Description".

Column Physical Name: **textsubcat** Column Label: Subcategory

A text entry is identified by its kind, category, and subcategory. Subcategory is a subdivision of category. For text kind "Nontechnical" description and text category "Agr", subcategory would correspond to the SSSD field "desnum".

Column Physical Name: **text** Column Label: Text

The actual narrative text portion of a text entry. The other parts of a text entry are its identifiers: kind, category and subcategory.

Column Physical Name: **mukey** Column Label: Mapunit Key

A non-connotative string of characters used to uniquely identify a record in the Mapunit table.

Column Physical Name: **mutextkey** Column Label: Mapunit Text Key

A non-connotative string of characters used to uniquely identify a record in the Mapunit Text table.

Table Physical Name: **sacatalog**

Table Label: Survey Area Catalog

Column Physical Name: **areasymbol** Column Label: Area Symbol

A symbol that uniquely identifies a single occurrence of a particular type of area (e.g. Lancaster Co., Nebraska is NE109).

Column Physical Name: **areaname** Column Label: Area Name

The name given to the specified geographic area.

Column Physical Name: **saversion** Column Label: Survey Area Version

A sequential integer number used to denote the overall serial version of the data (tabular and/or spatial) for a soil survey area.

Column Physical Name: **saverest** Column Label: Survey Area Version Established

The date and time that a particular version of data (tabular and/or spatial) for the soil survey area was established.

Column Physical Name: **tabularversion** Column Label: Tabular Version

A sequential integer number used to denote the serial version of the tabular data for a soil survey area.

Column Physical Name: **tabularverest** Column Label: Tabular Version Established

The date and time that a particular version of tabular data for the soil survey area was established.

Column Physical Name: **tabnasisexportdate** Column Label: Tabular NASIS Export Date

The date and time that soil survey area tabular data was exported from NASIS.

Column Physical Name: **tabcertstatus** Column Label: Tabular Certification Status

The level of certification assigned to a tabular data package for a particular soil survey area.

Column Physical Name: **tabcertstatusdesc** Column Label: Tabular Certification Status Description

Narrative text notes (metadata) associated with the assignment of the tabular data certification status for a particular soil survey area.

Column Physical Name: **fgdcmetadata** Column Label: FGDC Metadata

The FGDC (Federal Geographic Data Committee) spatial and/or tabular metadata for the corresponding soil survey area, in XML format.

Column Physical Name: **sacatalogkey** Column Label: Survey Area Catalog Key

A non-connotative string of characters used to uniquely identify a record in the Survey Area Catalog table.

Table Physical Name: **sainterp**

Table Label: Survey Area Interpretation

Column Physical Name: **areasymbol** Column Label: Area Symbol

A symbol that uniquely identifies a single occurrence of a particular type of area (e.g. Lancaster Co., Nebraska is NE109).

Column Physical Name: **interpname** Column Label: Interpretation Name

The connotative name of an interpretation.

Column Physical Name: **interptype** Column Label: Interpretation Type

Indicates if the corresponding interpretation is designed as a limitation, suitability or class.

Column Physical Name: **interpdesc** Column Label: Interpretation Description

A narrative text description of the logic used to generate an interpretation.

Column Physical Name: **interpdesigndate** Column Label: Interpretation Design Date

The date and time that the logic of an interpretation was last modified.

Column Physical Name: **interpgendate** Column Label: Interpretation Generation Date

The date and time that the corresponding interpretive results for this interpretation were generated.

Column Physical Name: **interpmaxreasons** Column Label: Interpretation Maximum Reasons

The maximum number of reasons recorded for the corresponding soil interpretation.

Column Physical Name: **sacatalogkey** Column Label: Survey Area Catalog Key

A non-connotative string of characters used to uniquely identify a record in the Survey Area Catalog table.

Column Physical Name: **sainterpkey** Column Label: Survey Area Interpretation Key

A non-connotative string of characters used to uniquely identify a record in the Survey Area Interpretation table.

Table Physical Name: **sapolygon**

Table Label: Survey Area Polygon

Column Physical Name: **areasymbol** Column Label: Area Symbol

A symbol that uniquely identifies a single occurrence of a particular type of area (e.g. Lancaster Co., Nebraska is NE109).

Column Physical Name: **spatialversion** Column Label: Spatial Version

A sequential integer number used to denote the serial version of the spatial data for a soil survey area.

Column Physical Name: **lkey** Column Label: Legend Key

A non-connotative string of characters used to uniquely identify a record in the Legend table.

Table Physical Name: **sdvalgorithm**

Table Label: SDV Algorithm

Column Physical Name: **algorithmsequence** Column Label: Algorithm Sequence

An integer number used to order the list of valid aggregation methods.

Column Physical Name: **algorithmname** Column Label: Algorithm Name

The name of a method by which a soil property or interpretation may be aggregated. In some table contexts, the default aggregation method for the corresponding soil attribute.

Column Physical Name: **algorithminitials** Column Label: Algorithm Initials

Initials that identify an aggregation method.

Column Physical Name: **algorithmdescription** Column Label: Algorithm Description

A narrative description of an aggregation method.

Table Physical Name: **sdvattribute**

Table Label: SDV Attribute

Column Physical Name: **attributekey** Column Label: Attribute Key

A integer value that uniquely identifies a soil attribute available in the Soil Data Viewer application.

Column Physical Name: **attributename** Column Label: Attribute Name

The connotative name of the corresponding soil attribute.

Column Physical Name: **attributetablename** Column Label: Attribute Table Name

The name of the SSURGO table that contains the corresponding soil attribute.

Column Physical Name: **attributecolumnname** Column Label: Attribute Column Name

The name of the SSURGO table column that contains the corresponding soil attribute.

Column Physical Name: **attributelogicaldatatype** Column Label: Attribute Logical Data Type

The logical data type of the corresponding soil attribute.

Column Physical Name: **attributefieldsize** Column Label: Attribute Field Size

The maximum allowable number of characters in a string attribute.

Column Physical Name: **attributeprecision** Column Label: Attribute Precision

The decimal precision of the corresponding soil attribute.

Column Physical Name: **attributedescription** Column Label: Attribute Description

A narrative description of the corresponding soil attribute.

Column Physical Name: **attributeuom** Column Label: Attribute Units of Measure

The units of measure in which the corresponding soil attribute is recorded.

Column Physical Name: **attributeuomabbrev** Column Label: Attribute Units of Measure Abbreviation

The abbreviated form of the units of measure in which the corresponding soil attribute is recorded.

Column Physical Name: **attributetype** Column Label: Attribute Type

A string that indicates if the corresponding Soil Data Viewer rule pertains to an intrinsic soil property or a soil interpretation.

Column Physical Name: **nasisrulename** Column Label: NASIS Rule Name

A name that uniquely identifies a particular NASIS rule (interpretation).

Table Physical Name: **sdvattribute**

Table Label: SDV Attribute

Column Physical Name: **ruledesign** Column Label: Rule Design

An indicator of the design scheme of the rule.

1 = limitation
2 = suitability
3 = class

When rule design is either "limitation" or "suitability", this entry provides an indication of which end of the fuzzy value range, 0 or 1, represents the most limiting features. When rule design is "class", the rating values are not considered to be logically ordered.

Most non-class interpretive rules are designed such that the most limiting features are those with a fuzzy value closest to 1. However, non-class interpretive rules that are designed to evaluate the favorable features of a soil, such as the suitability as a gravel source, may be written such that the most limiting features are those with a fuzzy value closest to 0.

Column Physical Name: **notratedphrase** Column Label: Not Rated Phrase

For a soil interpretation, the phrase to be used when a rating cannot be determined. The default value for this string is "Not rated", but NASIS permits the designer of an interpretation to change this default.

Column Physical Name: **mapunitlevelattribflag** Column Label: Map Unit Level Attribute Flag

Indicates if the corresponding attribute is considered to be "at the map unit level", in the map unit table hierarchy.

Column Physical Name: **complevelattribflag** Column Label: Component Level Attribute Flag

Indicates if the corresponding attribute is considered to be "at the component level", in the map unit table hierarchy.

Column Physical Name: **cmonthlevelattribflag** Column Label: Component Month Level Attribute Flag

Indicates if the corresponding attribute is considered to be "at the component month level", in the map unit table hierarchy.

Column Physical Name: **horzlevelattribflag** Column Label: Horizon Level Attribute Flag

Indicates if the corresponding attribute is considered to be "at the horizon level", in the map unit table hierarchy.

Column Physical Name: **tiebreakdomainname** Column Label: Tie Break Domain Name

In some cases the column that is being aggregated to the map unit level corresponds to an attribute whose values are restricted to a ranked domain. In this case, this rank value is used to resolve ties. In order to be able to retrieve this rank value, the corresonding domain name must be provided.

Column Physical Name: **tiebreakruleoptionflag** Column Label: Tie Break Rule Option Flag

For intrinsic soil properties, whether ties should select the lowest or highest value may be an arbitrary decision. In such a case, this flag can be set, and in advanced mode the user can then specify at run time whether the lowest or highest value should be selected in case of a tie.

Column Physical Name: **tiebreaklowlabel** Column Label: Tie Break Low Label

The term to be displayed for the option to break ties by selecting the lowest value.

Column Physical Name: **tiebreakhighlabel** Column Label: Tie Break High Label

The term to be displayed for the option to break ties by selecting the highest value.

Table Physical Name: **sdvattribute**

Table Label: SDV Attribute

Column Physical Name: **tiebreakrule** Column Label: Tie Break Rule

Indicates if ties should be broken by selecting the lowest value (-1) or the highest value (1).

Column Physical Name: **resultcolumnname** Column Label: Result Column Name

The name of the column in which the results of the aggreation process are ultimately stored.

Column Physical Name: **sqlwhereclause** Column Label: SQL Where Clause

Explicit constraints used to restrict which records in a table are subject to being aggregated. One of several possible mechanisms for specifying constraints as to which records are subject to being aggregated. Multiple constraint mechanisms may be concurrently specified.

Column Physical Name: **primaryconcolname** Column Label: Primary Constraint Column Name

The name of a column used to constrain which records in a table are subject to being aggregated. One of several possible mechanisms for specifying constraints as to which records are subject to being aggregated. Multiple constraint mechanisms may be concurrently specified.

Column Physical Name: **pcclogicaldatatype** Column Label: Primary Constraint Column Logical Data Type

The logical data type of the corresponding primary constraint column.

Column Physical Name: **primaryconstraintlabel** Column Label: Primary Constraint Label

A connotative label associated with a column used to constrain which records in a table are subject to being aggregated. This label is displayed in the Soil Data Viewer interface to indicate to the user what kind of constraining value is being requested.

Column Physical Name: **secondaryconcolname** Column Label: Secondary Constraint Column Name

The name of a column used to constrain which records in a table are subject to being aggregated. One of several possible mechanisms for specifying constraints as to which records are subject to being aggregated. Multiple contraint mechanisms may be concurrently specified.

The choice list for the secondary constraint column is constrained to data found in records that match the value specified for the primary constraint column.

Column Physical Name: **scclogicaldatatype** Column Label: Secondary Constraint Column Logical Data Type

The logical data type of the corresponding secondary constraint column.

Column Physical Name: **secondaryconstraintlabel** Column Label: Secondary Constraint Label

A connotative label associated with a column used to constrain which records in a table are subject to being aggregated. This label is displayed in the Soil Data Viewer interface to indicate to the user what kind of constraining value is being requested.

Column Physical Name: **dqmodeoptionflag** Column Label: Depth Qualifier Mode Option Flag

Indicates if the depth qualifier for the corresponding soil attribute can be changed at run time.

Column Physical Name: **depthqualifiermode** Column Label: Depth Qualifier Mode

Indicates the means by which layer depths are qualified: "Surface Layer", "All Layers" or "Depth Range". Pertains to properties of a soil horizon or layer.

Column Physical Name: **layerdepthtotop** Column Label: Layer Depth to Top

Layer depth to top, when layer depths are qualified by "Depth Range".

Table Physical Name: **sdvattribute**

Table Label: SDV Attribute

Column Physical Name: **layerdepthtobottom** Column Label: Layer Depth to Bottom

Layer depth to bottom, when layer depths are qualified by "Depth Range".

Column Physical Name: **layerdepthuom** Column Label: Layer Depth UOM

The units of measure in which layer depth range is specified (centimeters or inches), when layer depths are qualified by "Depth Range".

Column Physical Name: **monthrangeoptionflag** Column Label: Month Range Option Flag

Indicates if the month range qualifiers for the corresponding soil attribute can be changed at run time.

Column Physical Name: **beginningmonth** Column Label: Beginning Month

Beginning month qualifier (full month name) for soil properties at the component month level or below.

Column Physical Name: **endingmonth** Column Label: Ending Month

Ending month qualifier (full month name) for soil properties at the component month level or below.

Column Physical Name: **horzaggmeth** Column Label: Horizon Aggregation Method

The method by which horizon level attribute values are aggregated in order to derive a value to represent the corresponding component. There are only two options, weighted average and weight sum. For the vast majority of horizon level attributes, weighted average is used. Weighted sum may be appropriate for a horizon level attribute whose corresponding unit of measure is something/(linear unit of measure). At the time this was written, the only horizon level attribute for which weighted sum is used is available water capacity, whose unit of measure is cm/cm.

Column Physical Name: **interpnullsaszerooptionflag** Column Label: Interpret Nulls as Zero Option Flag

Indicates if the option to interpret nulls as zero for the corresponding soil attribute should be able to be changed at run time.

Column Physical Name: **interpnullsaszeroflag** Column Label: Interpret Nulls as Zero Flag

Indicates if null values for the corresponding soil attribute should be conditionally converted to zero at run time.

Column Physical Name: **nullratingreplacementvalue** Column Label: Null Rating Replacement Value

The value that should be substituted in lieu of a null value in the aggregation results for the corresponding soil attribute. This value is populated when a null result should be interpreted as something other than null. Examples include flooding and ponding frequency class, where a null value should be interpreted as "None", and depth to soil restrictive layer or depth to water table, where a null value should be interpreted as signifying that no restrictive layer or water table exists within a certain depth.

Column Physical Name: **basicmodeflag** Column Label: Basic Mode Flag

Indicates if the corresponding soil attribute is available in the basic mode of the Soil Data Viewer application.

Column Physical Name: **maplegendkey** Column Label: Map Legend Key

An integer number that unique identifies a map legend. A map legend identifies some of the attributes needed to create the legend for a corresponding thematic map.

Column Physical Name: **maplegendclasses** Column Label: Map Legend Classes

The desired number of classes in a thematic map legend. At the current time this value is only required when map legend type is "Natural Break Classes".

Table Physical Name: **sdvattribute**

Table Label: SDV Attribute

Column Physical Name: **maplegendxml** Column Label: Map Legend XML

Information that is ultimately used to convey how the map legend for the corresponding soil attribute should be rendered.

Column Physical Name: **nasissiteid** Column Label: NASIS Site ID

An integer number that uniquely identifies a NASIS site.

Column Physical Name: **wlupdated** Column Label: Last Updated

The last date in which any data element of a particular NASIS object (area, data mapunit, etc.) was modified.

Column Physical Name: **algorithmname** Column Label: Algorithm Name

The name of a method by which a soil property or interpretation may be aggregated. In some table contexts, the default aggregation method for the corresponding soil attribute.

Column Physical Name: **componentpercentcutoff** Column Label: Component Percent Cutoff

The component percent composition value below which components should not be included in the aggregation process.

Column Physical Name: **readytodistribute** Column Label: Ready to Distribute

Indicates if the corresponding soil attribute or Soil Data Viewer rule is ready to distribute publicly.

Column Physical Name: **effectivelogicaldatatype** Column Label: Effective Logical Data Type

The logical data type of the output rating value. For most aggregation methods, this is the same as the logical data type of the column that is the subject of the SDV Rule in question. For aggregation method "Percent Present", the effective logical data type will always be "Integer". For aggregation method "Weighted Average", for a class soil interpretation, the effective logical data will always be "Float".

Table Physical Name: **sdvfolder**

Table Label: SDV Folder

Column Physical Name: **foldersequence** Column Label: Folder Sequence

An integer value used to order folders within the same context.

Column Physical Name: **foldername** Column Label: Folder Name

A connotative name for a folder that indicates its corresponding contents.

Column Physical Name: **folderdescription** Column Label: Folder Description

A narrative description of the contents of the corresponding folder.

Column Physical Name: **folderkey** Column Label: Folder Key

An integer value that uniquely identifies its corresponding folder.

Column Physical Name: **parentfolderkey** Column Label: Parent Folder Key

An integer value that identifies the parent folder of the corresponding folder, if any. At this time we chose to not actually create folder hierarchies, but we decided to retain this column in case we ever do.

Column Physical Name: **wlupdated** Column Label: Last Updated

The last date in which any data element of a particular NASIS object (area, data mapunit, etc.) was modified.

Table Physical Name: **sdvfolderattribute**

Table Label: SDV Folder Attribute

Column Physical Name: **folderkey** Column Label: Folder Key

An integer value that uniquely identifies its corresponding folder.

Column Physical Name: **attributekey** Column Label: Attribute Key

A integer value that uniquely identifies a soil attribute available in the Soil Data Viewer application.

Appendix C – Phase I Cultural Resources Assessment

Phase I Cultural Resources Assessment for the Lower Tule River Irrigation District Poplar Basin Project, Tulare County, California

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April 2025

USGS Woodville, California 7.5' topographic quadrangle
41-acre APE; 100% surveyed
Keywords: Casa Blanca Canal

MANAGEMENT SUMMARY

Taylored Archaeology completed a Phase I cultural resources assessment for the Lower Tule River Irrigation District Poplar Basin Project, Tulare County, California. The Project involves developing an approximately 40-acre recharge facility on the Project site. Implementation of the Project will help support meeting the objectives of the Sustainable Groundwater Management Act (SGMA) in the Tule Subbasin. The new 40-acre recharge basin facility will include a new turnout connection from the LTRID's Casa Blanca Ditch on the southern end of the property and approximately 100 feet of pipeline. The Project will be funded by the Department of Water Resources for Proposition 68 Fund, a state program. The Project is subject to the California Environmental Quality Act (CEQA), with the Lower Tule River Irrigation District as the lead agency under CEQA.

Results of the California Historical Resources Information System (CHRIS) records search from the Southern San Joaquin Valley Information Center (SSJVIC) indicated that one prior cultural resources study and one previously recorded cultural resource, a historic-era canal segment of the Casa Blanca Canal (P-54-005026), were conducted within the Project area. No cultural resources studies nor recorded cultural resources were listed within a 0.5-mile radius of the Project area. The canal was originally recorded in 2006 and found in 2011 to be ineligible for the California Register of Historic Resources (CRHR). It was also evaluated by the U.S. Bureau of Reclamation in 2013 and found to be ineligible for inclusion in the National Register of Historic Places (NRHP). A different segment of the canal was additionally recorded in 2016, and in 2017 found to be not eligible for inclusion in the CRHR. The archaeological pedestrian survey found no prehistoric archaeological resources within the Project boundary and confirmed the presence of the Casa Blanca Canal within the Project boundary. Due to a lack of significance, the Casa Blanca Canal is not considered eligible for inclusion in the NRHP or CRHR.

The Native American Heritage Commission's Sacred Lands File search results were negative and did not identify archaeological sites or tribal cultural resources in the Project boundary. Nongovernmental outreach was conducted to local tribes identified by the NAHC as potentially having Project-specific information about important or sacred sites. One response was received from this outreach. Cultural Resource Director for the Table Mountain Rancheria Bob Pennell stated that this project is outside of Table Mountain Rancheria's area of cultural interest and to consult with the Tule River Tribe's Tribal Historic Preservation Officer. No other responses were received by the Native American representatives, nor was any information shared regarding the Project area. (Appendix C).

The absence of cultural material on the ground surface does not, however, preclude the possibility of Project construction unearthing buried archaeological deposits.

Taylored Archaeology concurs with the prior findings that the Casa Blanca Canal (P-54-005026) is not eligible for listing in the NRHP or CRHR, and as such the proposed Project will not have a significant impact on historical resources in relationship to the Casa Blanca Canal. Based on the results of this investigation, Taylored Archaeology recommends the following best management practices be implemented during Project construction:

- In the event of discovery of unidentified archaeological resources during development or ground-moving activities in the APE, all work shall be temporarily halted in the immediate vicinity (100 feet) until a qualified archaeologist can identify the discovery and assess its significance.

- If human remains are uncovered during construction, the Tulare County Coroner is to be notified to investigate the remains and arrange proper treatment and disposition. If the remains are identified on the basis of archaeological context, age, cultural associations, or biological traits to be those of a Native American, California Health and Safety Code 7050.5 and PRC 5097.98 require that the coroner notify the NAHC within 24 hours of discovery. The NAHC will then identify the Most Likely Descendent who will be afforded an opportunity to make recommendations regarding the treatment and disposition of the remains.

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1
INTRODUCTION

Taylored Archaeology conducted a Phase I cultural resources assessment for the Lower Tule River Irrigation District (LTRID) Poplar Basin Project (Project) in Tulare County, California under contract to Provost & Pritchard Consulting Group. The proposed Project involves the construction of a recharge facility. As part of development approval process, the proposed Project is subject to the California Environmental Quality Act (CEQA) with the LTRID as lead agency and therefore, LTRID must comply with the CEQA (Public Resources Code [PRC] 21000 [g] mandate that government agencies consider the impacts of a project on the environment, including cultural resources.

1.1 PROJECT LOCATION AND DESCRIPTION

The Project is approximately 3.87 miles southwest of the City of Porterville (City) and approximately 1 mile south of Poplar in Tulare County, California (Figure 1-1). The Project lies in the northeast ¼ of Section 11, Township 22 South, Range 26 East, Mount Diablo Base and Meridian as depicted on the U.S. Geological Survey (USGS) 7.5-minute Woodville, California, topographic quadrangle (Figure 1-2).

The LTRID has secured grant funding under Proposition 68 from the California Department of Water Resources. Under the grant funding, the proposed Project would develop an approximately 40-acre recharge facility on the Project site. Implementation of the Project will help support meeting the objectives of the Sustainable Groundwater Management Act (SGMA) in the Tule Subbasin. The new 40-acre recharge basin facility will include a new turnout connection from the LTRID's Casa Blanca Ditch on the southern end of the property and approximately 100 feet of pipeline. The total Project boundary is approximately 41 acres (Figure 1-3).

1.2 REGULATORY SETTING

In this report "cultural resources" are defined as prehistoric or historical archaeological sites as well as historical objects, buildings, or structures. In accordance with 30 Code of Federal Regulations (CFR) §60.4, "historical" in this report applies to cultural resources which are at least 50 years old. The significance or importance of a cultural resource is dependent upon whether the resource qualifies for inclusion at the local or state level in the California Register of Historical Resources (CRHR). Cultural resources that are determined to be eligible for inclusion in the CRHR are called "historical resources" (California Code of Regulations [CCR] 15064.5[a]). Under this statue the determination of eligibility is partially based on the consideration of the criteria of significance as defined in 14 CCR 15064.5(a)(3). Cultural resources eligible for inclusion in the National Register of Historic Places (NRHP) are deemed "historic properties".

1.2.1 CALIFORNIA ENVIRONMENTAL QUALITY ACT

Pursuant to CEQA, a historical resource is a resource listed in, or determined to be eligible for listing in, the CRHR. Historical resources may include, but are not limited to, “any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically or archaeologically significant” (PRC §5020.1[j]). In addition, a resource included in a local register of historical resources or identified as significant in a local survey conducted in accordance with the state guidelines are also considered historic resources under California Public Resources Code (PRC) Section 5020.1.

CEQA details appropriate measures for the evaluation and protection of cultural resources in §15064.5 of the CEQA Guidelines. According to CEQA guidelines §15064.5 (a)(3), criteria for listing on the CRHR includes the following:

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

According to CEQA guidelines §21074 (a)(1), criteria for tribal cultural resources includes the following:

> *(1) Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:*
>> *(A) included or determined to be eligible for inclusion in the California Register of Historical Resources.*
>> *(B) included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.*

Protection of cultural resources within California is additionally regulated by PRC §5097.5, which prohibits destruction, defacing, or removal of any historic or prehistoric cultural features on land under the jurisdiction of State or local authorities.

1.2.2 NATIONAL REGISTER OF HISTORIC PLACES

The NHPA established criteria for determining if a historic property is eligible for inclusion in the NRHP. These criteria are set forth in 36 CFR 60.4 as follows:

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

(a) that are associated with events that have made a significant contribution to the broad patterns of our history; or

(b) that are associated with the lives of persons significant in our past; or

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

(d) that have yielded, or may be likely to yield, information important in prehistory or history.

A resource must also, except in rare circumstances, be 50 years or older. In addition, the resource must retain enough of its historical character to convey the reason for its significance, also known as its integrity. A resource's seven aspects of integrity are defined as follows (National Park Service 2022):

1. *Location is the place where the historic property was constructed or the place where the historic event occurred;*
2. *Design is the combination of elements that create the form, plan, space, structure, and style of a property;*
3. *Setting is the physical environment of a historic property;*
4. *Materials are the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property;*
5. *Workmanship is the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory;*
6. *Feeling is a property's expression of the aesthetic or historic sense of a particular period of time;*
7. *Association is the direct link between an important historic event or person and a historic property.*

Only after significance is fully established is the issue of integrity addressed. Ultimately, the question of integrity is answered by whether the property retains sufficient character-defining features to continue to convey its historical significance. It is important to note that structural integrity is not considered in the analysis of historical integrity.

1.3 PROFESSIONAL QUALIFICATIONS

Archaeologist Consuelo Y. Sauls (M.A.), a Registered Professional Archaeologist (RPA 41591505), managed the assessment and compiled this report for the Project. Ms. Sauls also conducted the records search, literature review, requested Sacred Lands File and performed the pedestrian field survey of the Project site. Ms. Sauls meets the Secretary of the Interior's Standards for

Professional Qualifications in Archaeology. Statement of Qualifications for key personnel is provided in Appendix A.

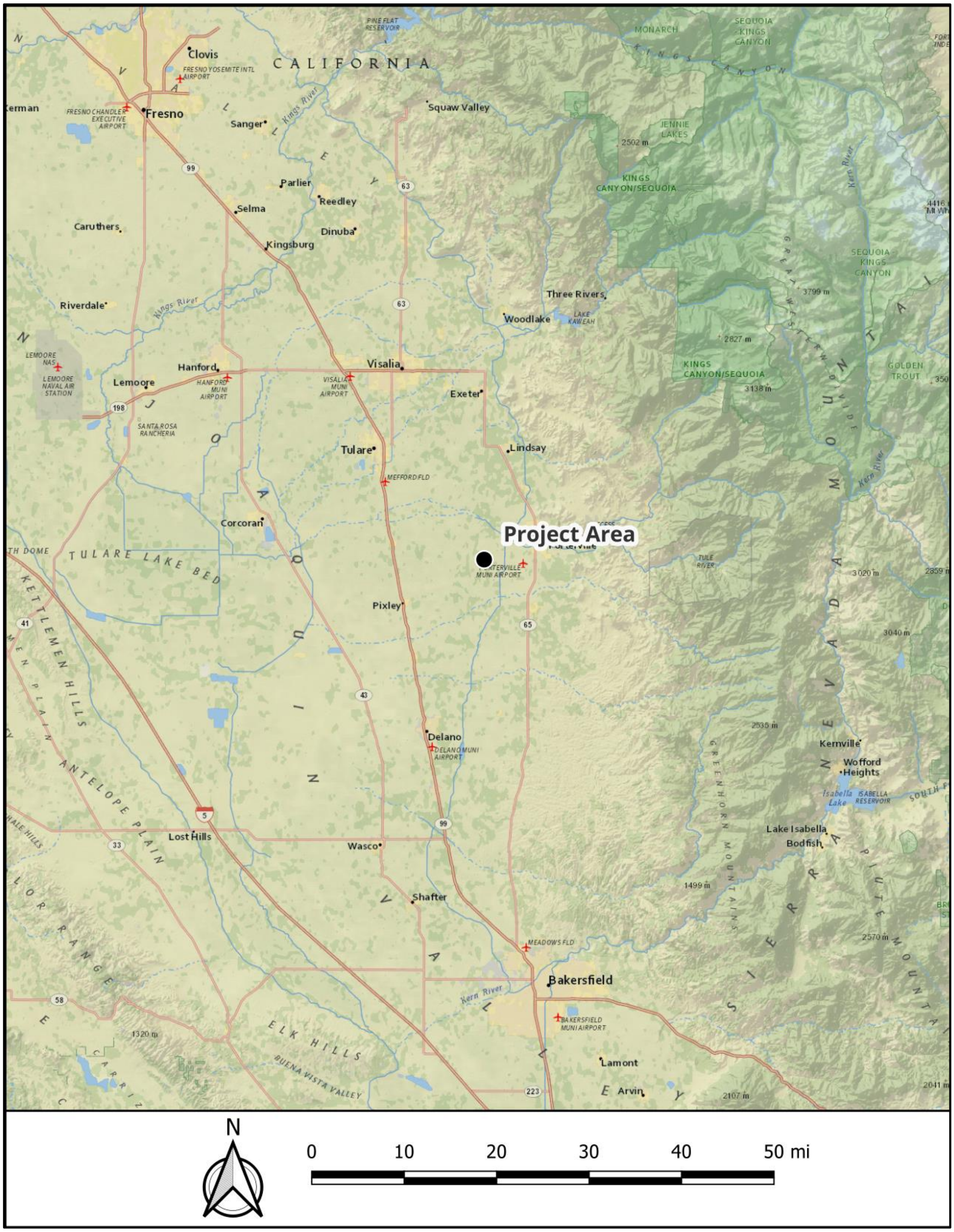

Figure 1-1 Project vicinity in Tulare County, California.

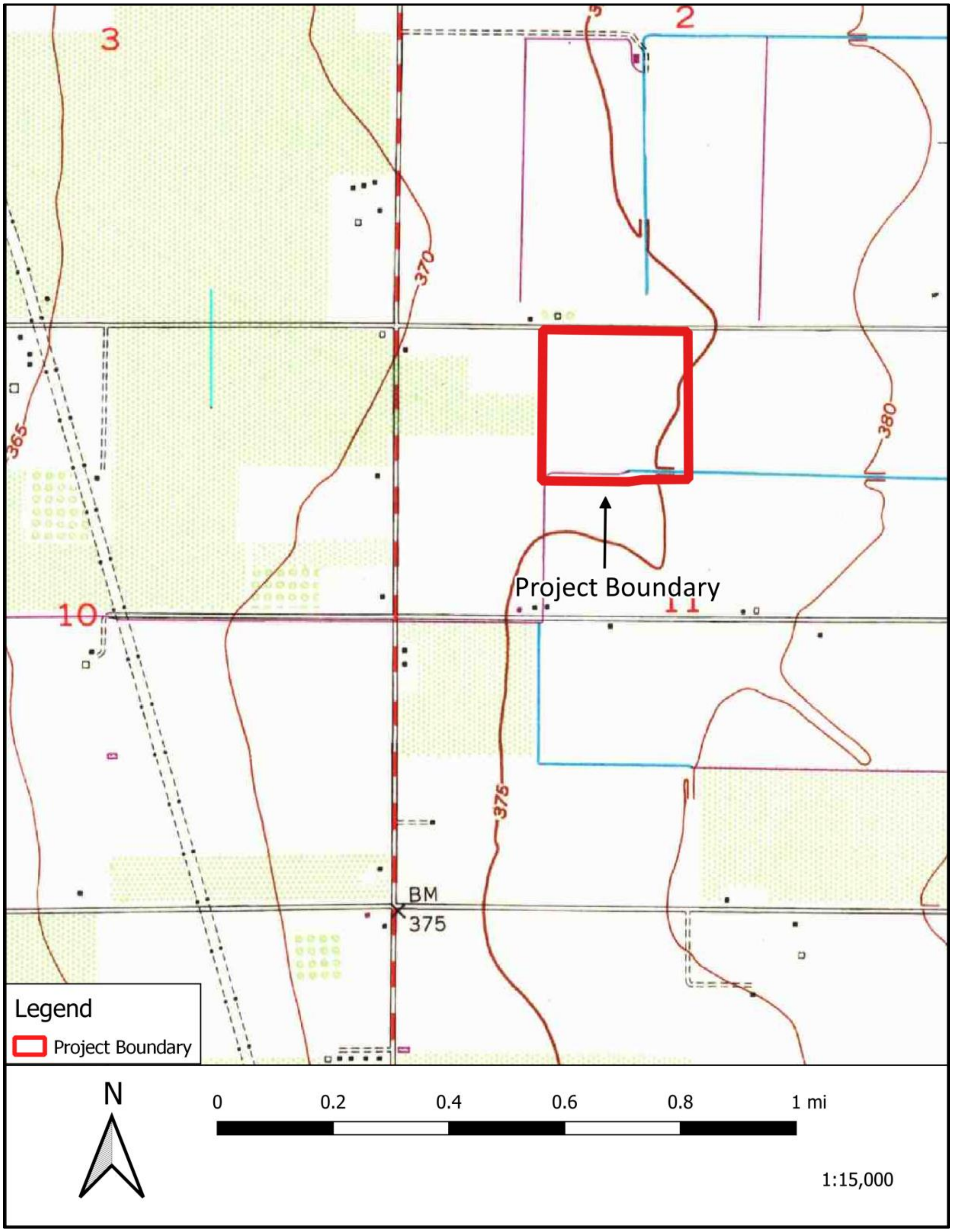

Figure 1-2 Project location on the USGS Woodville, CA 7.5-minute quadrangle.

Figure 1-3 Aerial view of the Project site.

1.4 REPORT STRUCTURE

This report documents the results of a cultural resource assessment of the proposed Project area. In order to comply with California regulations for CEQA, the following specific tasks were completed: (1) requesting a records search from the Southern San Joaquin Information Center (SSJVIC) of the California Historical Resources Information System (CHRIS), at California State University, Bakersfield; (2) a review of site archives (3) requesting a Sacred Lands File Search and list of interested parties from the Native American Heritage Commission (NAHC) and initiating outreach to local Native American individuals and tribal representatives; (4) conducting an archaeological pedestrian survey, (5) preparing this technical report and (6) preparing California Department of Parks and Recreation (DPR) forms.

Taylored Archaeology prepared this technical report following the California Office of Historic Preservation standards in the 1990 Archaeological Resources Management Report Recommended Contents and Format. Chapter 1 describes the introduction of the Project and its location, and identifies the key personnel involved in this report. Chapter 2 summarizes the Project setting, including the natural, prehistoric, historic, and ethnographic background for the Project area and surrounding area. Chapters 3 details the methods used for cultural records search, archival research, local Native American outreach, and archaeological pedestrian survey. Chapter 4 summarizes the results of the cultural resource investigation. Chapter 5 discusses the Project results and offers management recommendations. Chapter 6 is a bibliography of references cited within this report. The report also contains the following appendices: Qualifications of key personnel (Appendix A), the CHRIS records search results (Appendix B), the NAHC letter of the SLF results (Appendix C), and California Department of Parks and Recreation (DPR) 523 Series forms (Appendix D).

2
PROJECT SETTING

2.1 NATURAL ENVIRONMENT

The Project area lies in the Central Valley of California, which is approximately 450 miles from north to south, and ranges in width east to west from 40 to 60 miles (Prothero 2017). The Central Valley is divided into two subunits, the Sacramento Valley in the north and the San Joaquin Valley in the south, which are each named after the primary rivers within each valley (Madden 2020). The Project is located approximately 470 feet above sea level on the open flat plains of the Southern San Joaquin Valley. Climate within the San Joaquin valley is classified as a 'hot Mediterranean climate', with hot and dry summers, and cool damp winters characterized by periods of dense fog known as 'tule fog' (Prothero 2017).

The San Joaquin Valley is a comprised of a structural trough created approximately 65 million years ago and is filled with nearly six miles of sediment (Bull 1964). The San Joaquin Valley ranges from Stockton and the San Joaquin-Sacramento River Delta in the north to Wheeler Ridge to the south, ranging nearly 60 miles wide at its widest (Zack 2017). It is split by late Pleistocene alluvial fans between the San Joaquin River hydrologic area in the north and the Tulare Lake Drainage Basin in the south (Rosenthal et al 2007). The Project site is located within the latter of the two hydrologic units. The Kaweah, Tule, Kern, and Kings rivers flowed into large inland lakes with no outflow except in high flood events, in which the lakes would flow through the Fresno Slough into the San Joaquin River. The largest of these inland lakes was the Tulare Lake, which occupied a vast area of Tulare and Kings Counties and was the largest freshwater lake west of the Mississippi. These four rivers in the Tulare Lake Drainage Basin accounted for more than 95 percent of water discharged into Tulare Lake, with the remaining five percent sourced from small drainages originating in the Coast Ranges to the west (Adams et al. 2015).

The Project area is in central Tulare County on the valley floor of the San Joaquin Valley within the greater Tule River alluvial fan. Before the appearance of agriculture in the nineteenth century, the Project location would have been comprised of prairie grasslands with scattered oak tree savannas near the foothills, and along the various streams and drainages (Preston 1981). Riparian environments would also have been present along various waterways, including drainages and marshes. Native vegetation likely would have consisted of needle grasses and other perennial bunchgrasses before the introduction of non-native species in the 1800s.

The valley floor of the region was largely dominated by marshlands, lakes, and annual grasslands. Historically, these habitats provided a lush environment for large animals, including various migratory birds and other waterfowl, grizzly bear, tule elk, pronghorn, mule deer, black bear, and mountain lion (Preston 1981). Native trees and plants observed in the Project vicinity include various blue, live, and white oaks, cottonwood, and willow. The introduction of agriculture to the region resulted in large animals being forced out of their habitat. Common land mammals now include valley coyote, bobcat, gray fox, kit fox, and rabbits. Rivers and lakes throughout the valley provide habitat for freshwater fish, including rainbow trout, Sacramento sucker, and Sacramento perch (Preston 1981).

2.2 PREHISTORIC SETTING

Research into San Joaquin Valley prehistory began in the early 1900s with several archaeological investigations (Rosenthal et al. 2007). The Southern San Joaquin Valley is of one of the least understood areas within California due to a lack of well-grounded chronologies for large segments of the valley (Rosenthal et al. 2007). This is largely due to the valley floor being filled with thick alluvial deposits, and from human activity largely disturbing much of the valley floor due to a century and a half of agricultural use (Dillon 2002; Siefken 1999). Mound sites may have occurred as frequently as one every two or three miles along major waterways but studying such mounded occupations sites is difficult as most surface sites have been destroyed (Schenck and Dawson 1929). Much of the early to middle Holocene archaeological sites may be buried as deep as 10 meters due to millennia of erosion and alluvial deposits from the western Sierras (Moratto 1984).

Mass agricultural development has heavily disturbed and changed the landscape of the Southern San Joaquin Valley, from the draining of marshes and the vanishing of the extensive Tulare Lake, to grading nearly the entire valley for agricultural operations (Garone 2011). These activities have impacted or scattered much of the shallow surface deposits and mounds throughout the valley (Rosenthal et al 2007). Some researchers have suggested that potentially as much as 90 percent of all Central California archaeological sites have been destroyed from these activities (Riddell 2002).

The cultural traits and chronologies which are summarized below are largely based upon information discussed in multiple sources, including Bennyhoff and Fredrickson (1973, 1974), Garfinkel (2015), McGuire and Garfinkel (1980), Moratto (1984), and Rosenthal et al. (2007). The most recent comprehensive approach to compiling a chronology of the Southern San Joaquin Valley prehistory is by Garfinkel in 2015, which builds off Rosenthal's 2007 previous work. Both Garfinkel's and Rosenthal's chronologies are calculated in years B.C. In the interest of maintaining cohesiveness with modern anthropological research, the dates of these chronologies have been adapted into years before present (B.P.).

The Paleo-Indian Period (13,500-10,600 cal B.P.) was largely represented by ephemeral lake sites which were characterized by atlatl and spear projectile points. Around 14,000 years ago, California was largely a cooler and wetter place, but with the retreat of continental Pleistocene glaciers, California largely experienced a warming and drying period. Lakes filled with glacial meltwater were located in the valley floor and used by populations of now extinct large game animals. A few prehistoric sites were discovered near the southwestern shore of Tulare Lake (Garfinkel 2015). Foragers appear to have operated in small groups which migrated on a regular basis.

During the Lower Archaic Period (10,500-7450 cal B.P.), climate change created a largely different environment which led to the creation of larger alluvial fans and flood plains. Most of the archaeological records of the prior period wound up being buried by geological processes. During this time, cultural patterns appear to have emerged between the foothill and valley populations of the local people. The foothill sites were often categorized by dense flaked and ground stone assemblages, while the valley sites were instead characterized by a predominance of crescents and stemmed projectile points. Occupation within the area is represented mostly by isolated discoveries and along the former shoreline of Tulare Lake. Archaeological finds are typically characterized by chipped stone crescents, stemmed points, and other distinctive flakes stone artifacts (Rosenthal et al. 2007). Variations in consumption patterns emerged as well, with the valley sites more marked by consumption of waterfowl, mussels, and freshwater fish, while the foothills sites saw an increase in nuts, seeds, and a more narrowly focused diet than the valley sites.

The Middle Archaic (7450-2500 cal B.P.) saw an increase in semi-permanent villages along river and creek settings, with more permanent sites located along lakes with a more stable supply of water and wildlife. Due to the warmer and drier weather of this period, many lakes within the valley dramatically reduced in size, while some vanished completely (Garone 2011). Cultural patterns during this time saw an increase in stone tools, while a growth in shell beads, ornaments, and obsidian evidence an extensive and ever-growing long-distance trade network. Little is known of cultural patterns in the valley during the Upper Archaic (2500-850 B.P.), but large village structures appeared to be more common around local rivers. An overall reduction of projectile point size suggests changing bow and arrow technologies. Finally, the Emergent Period (850 cal B.P. - Historic Era) was generally marked by an ever-increasing specialization in tools, and the bow and arrow generally replaced the dominance of the dart and atlatl. Cultural traditions ancestral to those recorded during ethnographic research in the early 1900s are identifiable.

2.3 ETHNOGRAPHY

The Project site is in the Southern Valley Yokuts ethnographic territory of the San Joaquin Valley. The Yokuts were generally divided into three major groups, the Northern Valley Yokuts, the Southern Valley Yokuts, and the Foothill Yokuts. The Yokuts are a sub-group of the Penutian language that covers much of coastal and central California and Oregon (Callaghan 1958). The Yokuts language contained multiple dialects spoken throughout the region, though many of them were mutually understandable (Merriam 1904).

The Yokuts have been extensively researched and recorded by ethnographers, including Powers (1877), Kroeber (1925), Gifford and Schenck (1926, 1929), Gayton (1930, 1945), Driver (1937), Harrington (1957), Latta (1977), and Wallace (1978). Much of the research from these ethnographers focuses on the central Yokuts tribes due to the northernmost tribes being impacted by Euro-Americans during the California Gold Rush of the mid 1800s, and by the southernmost tribes often being removed and relocated by the Spanish to various Bay Area or coastal missions. The central Yokuts tribes, and especially the western Sierra Nevada foothill tribes, were the most intact at the time of ethnographic study.

The most detailed ethnographic information gathered regarding Native American group territories in Central California is located within maps prepared by Kroeber. The information presented in Kroeber's map of Southern and Central Yokuts shows the Project area within the Koyeti Yokuts territory (1925: Plate 47). The main village for this area was *Chokowisho*, which was approximately 4 miles to the north of the Project site along the Tule River (Kroeber 1925). Primary Yokuts villages were typically located along lakeshores and major stream courses, with scattered secondary or temporary camps and settlements located near gathering areas in the foothills. Yokuts were organized into local tribes, with one or more linked villages and smaller settlements within a territory (Kroeber 1925).

Each local tribe was a land-owning group that was organized around a central village and shared common territory and ancestry. Most local tribe populations ranged from 150 to 500 people (Kroeber 1925). These local tribes were often led by a chief, who was often advised by a variety of assistants including the winatum, who served as a messenger and assistant chief (Gayton 1930). Early studies by Kroeber (1925), Gifford and Schenck (1926), and Gayton (1930) concluded that social and political authority within local tribes was derived from male lineage and patriarchy. However, more recent reexaminations (Dick-Bissonnette 1998) argue that this assumption of patriarchal organization was based on male bias by early 20th century researchers, and instead Yokuts sociopolitical authority was matriarchal in nature and centered around matrilineal use-rights and women's work groups.

Prior to Euro-American contact, there was abundance of natural resources within the greater Tulare Lake area. Due to these resources, Yokuts maintained some of the largest populations in North America west of the continental divide (Cook 1955a).

2.4 HISTORIC SETTING

2.4.1 California History

European contact in modern-day California first occurred in 1542 with the arrival of a Spanish expedition lead by Juan Rodríguez Cabrillo into San Diego Bay (Engstrand 1997). Expeditions along the California coast continued throughout the sixteenth century and primarily focused on finding favorable harbors for further expansion and trade across the Pacific. However, rocky shorelines, unfavorable currents, and wind conditions made traveling north from New Spain to the upper California coast a difficult and time-consuming journey (Eifler 2017). The topography of California, with high mountains, large deserts, and few natural harbors lead to European expansion into California only starting in the 1760s. As British and Russian expansion through fur trading encroached on California from the north, Spain established a system of presidios, pueblos, and missions along the California coast to defend its claim, starting with Mission San Diego de Alcalá in 1769 (Engstrand 1997).

2.4.2 Central California History

The San Joaquin Valley did not experience contact with Europeans until the late 1700s (Starr 2007). Life at the California missions was hard and brutal for Native Americans, with many dying of disease, poor conditions, and many fleeing to areas not under direct Spanish control (Jackson and Castillo 1995). The earliest exploration of the San Joaquin Valley by Europeans was likely by the Spaniards when in the fall of 1772 a group known as the Catalonian Volunteers entered the valley through Tejon Pass in search of deserters from the Southern California Missions (Zack 2017). However, the group only made it as far north as Buena Vista Lake in modern day Kern County before turning around due to the extensive swamps. Additional excursions to the valley were for exploration such as those led by Lieutenant Bariel Moraga in 1806, but also to find sites for suitable mission sites and to track down Native Americans fleeing the coastal missions (Cook 1958).

Subsequent expeditions were also sent to pursue outlaws from the coast who would often flee to the valley for safety. One of the subsequent explorations was an expedition in 1814 to 1815 with Sargent Juan Ortega and Father Juan Cabot, who left the Mission San Miguel with a company of approximately 30 Spanish soldiers and explored the San Joaquin Valley (Smith 2004). This expedition passed through the Kaweah Delta and modern-day Visalia and made a recommendation to establish a mission near modern-day Visalia. However, with European contact also came European disease. Malaria and other new diseases were brought by Europeans, and in 1833 an epidemic of unknown origin traveled throughout the Central Valley. Some estimates place the Native American mortality of the epidemic as high as 75 percent (Cook 1955b). Combined with the rapid expansion of Americans into California in 1848 during the Gold Rush, Native American populations within the valley never fully recovered (Eifler 2017).

Initial settlement within the valley by Europeans in the 1830s was largely either by trappers or horse thieves (Clough and Secrest 1984). In fact, horse and other livestock theft was so rampant that ranching operations on the Rancho Laguna de Tache by the Kings River and Rancho del San Joaquin Rancho along the San Joaquin River could not be properly established (Cook 1962). With the end of the Mexican American War and the beginning of the gold rush in 1848, the San Joaquin Valley became more populated with ranchers and prospectors. Most prospectors traveled by sea to San Francisco and used rivers ranging from the Sacramento River to the San Joaquin River to access the California interior (Eifler 2017). Most areas south of the San Joaquin River were less settled simply because those rivers did not connect to the San Francisco Bay area except in wet flood years. By 1850, California became a state and Tulare County was established in 1853.

2.4.3 Local History

The city of Porterville, located northeast of the Project area, was founded in 1854, and initially served as the Tule River Station stop for the Butterfield Overland Mail state route as it traveled north from Los Angeles to Stockton (Helmich 2008). The location eventually became known in Porterville in 1864 named after Royal Porter Putnam who purchased 40 acres to start the town after the Tule River permanently changed course after flooding in 1862 (Holloway 2021). The Southern Pacific Railroad was extended from Fresno into Tulare County in the early 1870s (Small

1926). By 1874, branch railroad connections were built to agricultural communities, (Mitchell 1974). The construction of the rail line also brought an increase in agriculture and farms, which clashed with existing ranching operations in the local area. Escalating conflicts and livestock disputes between ranchers and farmers lead to the “No Fence Law” in 1874, which forced ranchers to pay for crop and property damage caused by their cattle (Ludeke 1980). With the passage of this law and the expansion of irrigation systems, predominant land use in the 1870s switched from grazing to farming (Mitchell 1974). This led to the beginning of the vast change of the San Joaquin Valley from native vegetation and grasslands to irrigated crops (Varner and Stuart 1975).

Water rights within California originally arose from the ‘first come first serve’ policy of the Gold Rush era. Diverting surface water to farms became big business but was a convoluted mess of customs, traditions, and conflicting claims (Zack 2017). Fed up with the situation, small farmers gathered behind Modesto lawyer C.C. Wright, who was elected to the California legislature in 1887 on the platform of taking water rights from large estates and putting it in the power of community-controlled irrigation districts (Hundley 1992). To solve this mess, the Wright Act of 1887 was passed that allowed residents to petition a local county board of supervisors to create irrigation districts that had the power to issues bonds, and tax land within the district boundaries to pay for the creation and maintenance of canals and ditches for irrigation purposes.

At the same time as the Wright Act, an important step forward was made in ditch-digging technology that allowed irrigation systems to be built at a faster pace. From the 1840s to 1890s, farm ditches and canals were largely constructed through the use of buckboards and slip-scoops, which involved the use of a board pulled by horses in an uprights position in order to level ground (Bulls 2010). Between 1883 and 1885, Scottish immigrant James Porteous had moved to Fresno and made significant improvements to the buckboard style scraper that allowed the new scraper to be pulled by two horses and scrape and move soil while dumping it at a controlled depth. This new design was patented and sold as the “Fresno Scraper”, which lead to an explosion of ditch digging efforts within the San Joaquin Valley (Zack 2017).

3
METHODS

3.1 RECORDS SEARCH

On March 19, 2025, Taylored Archaeology requested a CHRIS records search from the SSJVIC at California State University in Bakersfield, California. The purpose of this request was to identify any prehistoric or historic resources on or near the Project site that had been previously recorded. The records search included the Project area and surrounding land within a 0.5-mile radius of the Project. Also included were historical United States Geological Survey (USGS) topographic maps, reports of previous cultural resource investigations, archaeological site and survey base maps, cultural resource records (DPR forms) as well as listings of the Historic Properties Directory of the Office of Historic Preservation, General Land Office Maps, Archaeological Determinations of Eligibility, and the California Inventory of Historic Resources (Appendix B).

3.2 ARCHIVAL RESEARCH

Archival research was conducted to gather general historical information to prepare historical context about the Project area and obtain information on historical development within the Project boundary. Historical maps, historical aerial photographs, historical USGS topographic maps, Google Earth aerial photographs, Google Street View photos, books, articles, and other records were used to better understand the prehistory and history of the Project area. The results of this research are presented in Chapter 4.

3.3 NATIVE AMERICAN OUTREACH

On March 19, 2025, Taylored Archaeology contacted the NAHC to request a SLF search, to determine if any known Native American cultural properties (e.g., places of religious, sacred activity or traditional use or gathering areas) are present within the Project area. The NAHC also included contact information of local Native American tribal representatives who may have knowledge or interest in sharing information of resources of sacred or spiritual significance in the Project area and surrounding area. The results of the SLF and any responses from the local representatives are in Chapter 4.

3.4 ARCHAEOLOGICAL PEDESTRIAN SURVEY

A pedestrian survey was conducted by archaeologist Consuelo Sauls on April 5, 2025, of the entire 41 acres of the Project site. Ms. Sauls walked 5-10 meters transects and generally oriented north-south within the Project boundary. All exposed ground surface was examined for artifacts (prehistoric and historical resources) that may be more than 50 years old and may be present on the ground surface. Ms. Sauls photographed the survey area using an iPhone 11 Pro digital camera.

4
RESULTS

4.1 RECORDS SEARCH

The SSJVIC provided the records search results in a letter on April 1, 2025 (Appendix B). The records search results identified one previous cultural resources study (TU-01629) conducted within the Project area and no previous cultural resources studies conducted within a 0.5-mile radius of the Project boundary. The records search identified one historic-era linear structure, the Casa Blanca Canal (P-54-005026) that was recorded within the Project area. No prehistoric or historic-era archaeological sites or built environment resources were identified within 0.5-mile radius of the Project boundary. TU-01629 was an archaeological survey investigation that surveyed and assessed a several-mile-long segment of the Casa Blanca Canal, including the segment of the canal within the Project site. This study recorded this segment of the Casa Blanca Canal, and determined the canal did not fit the criteria for significance under CEQA. The canal was additionally previously evaluated by the U.S. Bureau of Reclamation in 2013 and found to be ineligible for inclusion in the NRHP (U.S. Bureau of Reclamation 2013). A different segment of the Casa Blanca Canal, approximately 0.78 miles to the southwest of Project site and outside of the 0.5-mile buffer, was recorded and evaluated in 2016 by Shannon E. Foglia and Rachel Droessler of AECOM (Foglia et al. 2017). Foglia et al. additionally agreed with the U.S. Bureau of Reclamation's findings regarding the canal's ineligibility.

Table 4-1 Previous Cultural Resources Studies within the Project Boundary

Report Number	Author(s)	Date	Report Title	Study
TU-01629	Catherine Lewis Pruett	2011	A Cultural Resources Assessment for the Pixley Irrigation District Distribution System Expansion Project, Tulare County, California	Archaeological Field Survey

Table 4-2 Previous Recorded Cultural Resources within the Project Boundary

Resource Number	Age Association	Resource Type	Resource Description	Resource Within APE
P-54-005026	Historic	Structure	A segment of the Casa Blanca Canal	Yes

4.2 ARCHIVAL RESEARCH

A search of historical USGS topographic maps from 1928 to present covering the APE shows the Project site originally bisected by the Casa Blanca Canal from east to west and with a single structure in the southern central portion of the site on the north side of the ditch (USGS 1928).

The 1950 USGS map depicts the site with the structure no longer present, and with the Casa Blanca Canal, or a branch of the ditch, terminating at the Project site (USGS 1950). Historic aerial imagery of the site is first available in 1946 and depicts the Project site as an orchard with no buildings on the site (USAAA 1946). By 1956 the Project site is similar to present day with the Casa Blanca Canal reoriented to its present alignment on the southern boundary of the site, and as an agricultural field. Between 1956 and present day, the site switched use between agricultural fields to orchards and back to a fallow field in 2025 (NETROnline 2025, Google Earth 2025).

4.3 NATIVE AMERICAN OUTREACH

The NAHC responded on March 19, 2025, via letter regarding Taylored Archaeology's request. The letter stated a search of the SLF was negative. The NAHC supplied a list of Native American representatives to contact for information or knowledge of cultural resources in the APE and the surrounding area (Appendix C).

The following Native American organizations/individuals were contacted from the list provided by NAHC below:

1. Chairperson Delia Dominguez of Kitanemuk & Yowlumne Tejon Indians;
2. Cultural Resource Director Bob Pennell of the Table Mountain Rancheria;
3. Chairperson Michelle Heredia-Cordova of the Table Mountain Rancheria;
4. Environmental Department Kerri Vera of the Tule River Tribe;
5. Chairperson Neil Peyron of the Tule River Indian Tribe; and
6. Chairperson Kenneth Woodrow of the Wuksache Indian Tribe/Eshom Valley Band.

The outreach letters were sent to all the Native American representatives on the contact list on April 7, 2025 (Appendix C). The letters included a description of the proposed Project and a topographic map and aerial photograph of the location. Follow-up by emails were sent on April 16, 2025. Bob Pennell, Cultural Resource Director of the Table Mountain Rancheria, responded on April 17, 2025. He stated that this CEQA project is outside of Table Mountain Rancheria's area of cultural interest and to consult with the Tule River Tribe's Tribal Historic Preservation Officer. No other responses were received by the Native American representatives, nor was any information shared regarding tribal cultural resources pertaining to the Project area.

4.4 ARCHAEOLOGICAL PEDESTRIAN SURVEY RESULTS

Ms. Sauls conducted an intensive pedestrian survey of the entire 40-acre Project site (Figure 4-1). The Project site consisted of a fallowed field with evidence of former use as an orchard due wood chip scatter and small almond saplings throughout the site (Figure 4-2). During the survey, ground visibility varied depending on the amount of vegetation and agricultural disturbance. Visibility ranged from poor to fair (30 to 60 percent) within areas containing mostly dense nonnative vegetation dominated by prickly lettuce and scattered wood chips (Figure 4-3). Ground visibility was good to excellent (80 to 100 percent) in areas by the canal (Figure 4-4). Soil on the site consisted of a grayish-brown loam.

During the survey, a segment of the Casa Blanca Canal (P-54-005026) was encountered on the south end of the Project site in an active and well-maintained condition (Figure 4-5). The canal segment is owned and operated by the LTID. Because the proposed pipeline construction will occur connecting to the canal, Taylored Archaeology prepared a DPR record form documenting the presence of the canal segment within the Project boundary but did not prepare an NRHP or CRHR eligibility evaluation for the canal segment as part of this study (Appendix D). The Casa Blanca Canal was already recorded in 2006 and 2016 by other archaeology companies and was evaluated for NRHP and CRHR eligibility in 2013 by the U.S. Bureau of Reclamation. The U.S. Bureau of Reclamation found the canal ineligible for inclusion in both the NRHP and CRHR (U.S. Bureau of Reclamation 2013). No prehistoric cultural resources were encountered during the pedestrian survey. While past agricultural and development activities may have potentially destroyed or obscured ground surface evidence of archaeological resources, intact archaeological resources may potentially exist below the ground surface.

Figure 4-1 Survey coverage of Project site.

Figure 4-2 Northern portion of Project site on south side of West Scranton Ave, facing south.

Figure 4-3 Central portion of Project site.

Figure 4-4 Southern portion of Project site along Casa Blanca Canal, facing east.

Figure 4-5 North side of Casa Blanca Canal, facing east.

5
CONCLUSION AND RECOMMENDATIONS

Taylored Archaeology did not encounter any prehistoric archaeological resources within the Project boundary; however, a prior recorded historical resource, the Casa Blanca Canal, was present within the Project boundary during the intensive pedestrian survey. The canal was evaluated by prior studies and found to be ineligible for inclusion in the NRHP (Pruett 2011, U.S. Bureau of Reclamation 2013, Foglia et al. 2017). Results of the CHRIS records search from the SSJVIC indicated that one prior cultural resources study and one previously recorded cultural resource, a historic-era canal segment of the Casa Blanca Canal (P-54-005026), were within the Project area. No cultural resources studies and or recorded cultural resources were listed within a 0.5-mile radius of the Project area.

The NAHC's Sacred Lands File search results were negative and did not identify archaeological sites or tribal cultural resources in the Project boundary. Nongovernmental outreach was conducted to local tribes identified by the NAHC as potentially having Project-specific information about important or sacred sites. One response was received from this outreach. Cultural Resource Director for the Table Mountain Rancheria Bob Pennell stated that this Project is outside of Table Mountain Rancheria's area of cultural interest and to consult with the Tule River Tribe's Tribal Historic Preservation Officer. No other responses were received by the Native American representatives, nor was any information shared regarding the Project area. (Appendix C).

The absence of cultural material on the ground surface does not, however, preclude the possibility of Project construction unearthing buried archaeological deposits.

Taylored Archaeology concurs with the prior findings of the U.S. Bureau of Reclamation that the Casa Blanca Canal (P-54-005026) is not eligible for listing in the CRHR nor the NRHP, and as such the proposed Project will not have a significant impact on historical resources in relationship to the Casa Blanca Canal. Based on the results of this investigation, Taylored Archaeology recommends the following best management practices be implemented during Project construction:

- In the event of accidental discovery of unidentified archaeological resources during development or ground-moving activities in the APE, all work shall be temporarily halted in the immediate vicinity (100 feet) until a qualified archaeologist can identify the discovery and assess its significance.

- If human remains are uncovered during construction, the Tulare County Coroner is to be notified to investigate the remains and arrange proper treatment and disposition. If the remains are identified on the basis of archaeological context, age, cultural associations, or biological traits to be those of a Native American, California Health and Safety Code 7050.5 and PRC 5097.98 require that the coroner notify the NAHC within 24 hours of discovery. The NAHC will then identify the Most Likely Descendent who will be afforded an opportunity to make recommendations regarding the treatment and disposition of the remains.

6
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APPENDIX A

Personnel Qualifications

Consuelo Sauls, M.A., RPA 41591505

Archaeologist

csaulsarchaeo@gmail.com

559.797.1572

Areas of Expertise

- Cultural Resource Management
- CEQA and Federal regulations
- Prehistoric Archaeology
- Laboratory Management
- Technical Writing
- Phase I Assessments

Years of Experience

- 16

Education

- M.A., Archaeology, University of Durham, 2014
- B.A., Anthropology, California State University, Fresno, 2009

Registrations/Certifications

- Registered Professional Archaeologist 41591505

Professional Affiliations

- Coalition for Diversity in California Archaeology
- Society for American Archaeology
- Society for California Archaeology
- Society of Black Archaeologists

Professional Experience

2019 –Present	Principal Investigator, Taylored Archaeology, Fresno, California
2018 – 2019	Staff Archaeologist, Applied EarthWorks, Inc., Fresno, California
2016 – 2018	Principal Investigator, Soar Environmental Consulting, Inc., Fresno, California
2015	Archivist/Database Technician, Development and Conservation Management, Inc., Laguna Beach, California
2013	Laboratory Research Assistant, Durham University Archaeology Department and Archaeology Museum, Durham, England, UK
2011 – 2012	Laboratory Technician, University of Pennsylvania Museum of Archaeology and Anthropology, Philadelphia, Pennsylvania
2008 – 2009	Laboratory Technician, California State University, Fresno
2008	Field School, California State University, Fresno

Technical Qualifications

Ms. Sauls meets the Secretary of the Interior’s Professional Qualification Standards as an archaeologist. She has conducted pedestrian surveys, supervised Extended Phase I survey, authored technical reports, and completed the Section 106 process with the State Historic Preservation Officer and Tribal Historic Preservation Officer. Her experience includes data recovery excavation at Western Mono sites and processing recovered artifacts in the laboratory as well as conducting archival research about prehistory and ethnography of Central California. Ms. Sauls has authored and contributed to technical and letter reports in compliance with of the National Historical Preservation Act (NHPA) Section 106 and the California Environmental Quality Act (CEQA). She also has supported NHPA tribal consultation and responded to Assembly Bill 52 tribal comments. Ms. Sauls also has an extensive background supervising laboratory processing, cataloging, and conservation of prehistoric and historical archaeological collections. In addition, she worked with the Rock Art Heritage Group in the management, preservation, and presentation of rock art in museums throughout England, including a thorough analysis of the British Museum’s rock art collections. At Durham University Archaeology Museum, Ms. Sauls processed the excavated skeletal remains of 30 individuals from the seventeenth century.

APPENDIX B

Records Search Results

California
Historical
Resources
Information
System

Fresno
Inyo
Kern
Kings
Madera
Tulare

Southern San Joaquin Valley Information Center
California State University, Bakersfield
Mail Stop: 72 DOB
9001 Stockdale Highway
Bakersfield, California 93311-1022
(661) 654-2289
Email: ssjvic@csub.edu
Website: www.csub.edu/ssjvic

4/1/2025

Consuelo Sauls
Taylored Archaeology
6083 N. Figarden Drive, Suite 616
Fresno, CA 93722

Re: Lower Tule River Irrigation District Schott Basin Project
Records Search File No.: 25-129

The Southern San Joaquin Valley Information Center received your record search request for the project area referenced above, located on Porterville & Woodville USGS 7.5’ quads. The following reflects the results of the records search for the project area and the 0.5 mile radius:

As indicated on the data request form, the locations of resources and reports are provided in the following format: ☒ Custom GIS Maps ☐ GIS Data ☐ Hand Drawn Maps (Inyo County Only)

Resources within project area:	P-54-005026
Resources within 0.5 mile radius:	None
Reports within project area:	TU-01629
Reports within 0.5 mile radius:	None

Resource Database Printout (list): ☒ enclosed ☐ not requested ☐ nothing listed

Resource Database Printout (details): ☒ enclosed ☐ not requested ☐ nothing listed

Resource Digital Database Records: ☒ enclosed ☐ not requested ☐ nothing listed

Report Database Printout (list): ☒ enclosed ☐ not requested ☐ nothing listed

Report Database Printout (details): ☒ enclosed ☐ not requested ☐ nothing listed

Report Digital Database Records: ☒ enclosed ☐ not requested ☐ nothing listed

Resource Record Copies: ☒ enclosed ☐ not requested ☐ nothing listed

Report Copies: ☒ enclosed ☐ not requested ☐ nothing listed

OHP Built Environment Resources Directory: ☐ enclosed ☐ not requested ☒ nothing listed

Archaeological Determinations of Eligibility: ☐ enclosed ☐ not requested ☒ nothing listed

CA Inventory of Historic Resources (1976): ☐ enclosed ☐ not requested ☒ nothing listed

Caltrans Bridge Survey: Not available at SSJVIC; please see
https://dot.ca.gov/programs/environmental-analysis/cultural-studies/california-historical-bridges-tunnels

Ethnographic Information: Not available at SSJVIC

Historical Literature: Not available at SSJVIC

Historical Maps: Not available at SSJVIC; please see
http://historicalmaps.arcgis.com/usgs/

Local Inventories: Not available at SSJVIC

GLO and/or Rancho Plat Maps: Not available at SSJVIC; please see
http://www.glorecords.blm.gov/search/default.aspx#searchTabIndex=0&searchByTypeIndex=1 and/or
http://www.oac.cdlib.org/view?docId=hb8489p15p;developer=local;style=oac4;doc.view=items

Shipwreck Inventory: Not available at SSJVIC; please see
https://www.slc.ca.gov/shipwrecks/

Soil Survey Maps: Not available at SSJVIC; please see
http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

Please forward a copy of any resulting reports from this project to the office as soon as possible. Due to the sensitive nature of archaeological site location data, we ask that you do not include resource location maps and resource location descriptions in your report if the report is for public distribution. If you have any questions regarding the results presented herein, please contact the office at the phone number listed above.

The provision of CHRIS Data via this records search response does not in any way constitute public disclosure of records otherwise exempt from disclosure under the California Public Records Act or any other law, including, but not limited to, records related to archeological site information maintained by or on behalf of, or in the possession of, the State of California, Department of Parks and Recreation, State Historic Preservation Officer, Office of Historic Preservation, or the State Historical Resources Commission.

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

Should you require any additional information for the above referenced project, reference the record search number listed above when making inquiries. Invoices for Information Center services will be sent under separate cover from the California State University, Bakersfield Accounting Office.

Thank you for using the California Historical Resources Information System (CHRIS).

Sincerely,

Celeste M. Thomson
Coordinator

APPENDIX C

Native American Outreach

NATIVE AMERICAN HERITAGE COMMISSION

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov

March 19, 2025

Consuelo Sauls
Taylored Archaeology

***Via Email to:* csaulsarchaeo@gmail.com**

Re: Lower Tule River Irrigation District Schott Basin Project, Tulare County

To Whom It May Concern:

As requested, a record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed based on information submitted for the above referenced project. The results were negative. Please note that tribes do not always record their sacred sites in the SLF, nor are they required to do so. As such, a SLF search is not a substitute for consultation with all tribes that are traditionally and culturally affiliated with a project's geographic area.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. Please contact all of those listed; if they cannot supply information, they may recommend others with specific knowledge. If within two weeks of notification, a response has not been received, the Commission requests that you follow-up with a telephone call or email to ensure that the project information was received.

If you receive notification of a change of address or phone number from a tribe, please notify the NAHC so that we can assure that our lists contain current information.

In addition to engaging in tribal consultation, you should consult the appropriate regional California Historical Research Information System (CHRIS) archaeological Information Center to determine whether it has information regarding the presence of recorded archaeological sites within the project area.

If you have any questions or need additional information, please contact me at melina.carlos@nahc.ca.gov.

Sincerely,

Melina Carlos

Melina Carlos
Cultural Resources Analyst

Attachment

Native American Heritage Commission
Native American Contact List
Tulare County
3/19/2025

County	Tribe Name	Fed (F) Non-Fed (N)	Contact Person	Contact Address	Phone #	Fax #	Email Address	Cultural Affiliation	Counties	Last Updated
Tulare	Kitanemuk & Yowlumne Tejon Indians	N	Delia Dominguez, Chairperson	115 Radio Street Bakersfield, CA, 93305	(626) 339-6785		2deedominguez@gmail.com	Kitanemuk Southern Valley Yokut	Fresno,Kern,Kings,Los Angeles,Madera,Monterey,San Benito,San Luis Obispo,Tulare	
	Table Mountain Rancheria	F	Bob Pennell, Cultural Resource	P.O. Box 410 Friant, CA, 93626	(559) 325-0351	(559) 325-0394	rpennell@tmr.org	Yokut	Fresno,Kern,Kings,Madera,Monterey,San Benito,San Luis Obispo,Tulare	
	Table Mountain Rancheria	F	Michelle Heredia-Cordova, Chairperson	P.O. Box 410 Friant, CA, 93626	(559) 822-2587	(559) 822-2693	mhcordova@tmr.org	Yokut	Fresno,Kern,Kings,Madera,Monterey,San Benito,San Luis Obispo,Tulare	12/21/2023
	Tule River Indian Tribe	F	Kerri Vera, Environmental Department	P. O. Box 589 Porterville, CA, 93258	(559) 783-8892	(559) 783-8932	kerri.vera@tulerivertribe-nsn.gov	Yokut	Alameda,Amador,Calaveras,Contra Costa,Fresno,Inyo,Kern, Kings,Madera,Mariposa,Merced,Monterey,Sacramento,San Benito,San Joaquin,San Luis Obispo,Stanislaus,Tulare,Tuolumne	7/22/2016
	Tule River Indian Tribe	F	Neil Peyron, Chairperson	P.O. Box 589 Porterville, CA, 93258	(559) 781-4271	(559) 781-4610	neil.peyron@tulerivertribe-nsn.gov	Yokut	Alameda,Amador,Calaveras, Contra Costa,Fresno,Inyo,Kern, Kings,Madera,Mariposa,Merced, Monterey,Sacramento,San Benito,San Joaquin,San Luis Obispo,Stanislaus,Tulare, Tuolumne	
	Wuksachi Indian Tribe/Eshom Valley Band	N	Kenneth Woodrow, Chairperson	1179 Rock Haven Ct. Salinas, CA, 93906	(831) 443-9702		kwood8934@aol.com	Foothill Yokut Mono	Alameda,Calaveras,Contra Costa,Fresno,Inyo,Kings,Madera, Marin,Mariposa,Merced,Mono,Monterey,San Benito,San Francisco,San Joaquin,San Mateo,Santa Clara,Santa Cruz,Stanislaus,Tulare,Tuolumne	6/19/2023

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Lower Tule River Irrigation District Schott Basin Project, Tulare County.

Record: PROJ-2025-001437
Report Type: List of Tribes
Counties: Tulare
NAHC Group: All

Native American Outreach Log

Lower Tule River Irrigation District Schott Basin Project, Tulare County, California

Organization	Name	Position	Address	Contact Information	Initial Contact	Follow Up	Contact Summary
Native American Heritage Commission	Melina Carlos	Culutral Resources Analyst	1550 Harbor Boulevard Suite 100 West Sacramento, California 95691	(916) 373-3710 nahc@nahc.ca.gov	3/19/2025	N/A	In a letter dated March 19, 2025, the NAHC stated that the results of the SLF results were negative and suggested to contact the local Native American representatives on the list provided.
Kitanemuk & Yowlumne Tejon Indians	Delia Dominguez	Chairperson	115 Radio Street Bakersfield, CA 93305	(626) 339-6785 2deedominguez@gmail.com	4/7/2025	4/16/2025	No response was received from the outreach letter or email follow up.
Table Mountain Rancheria	Michelle Heredia-Cordova	Chairperson	P.O. Box 410 Friant, CA 93626	(559) 822-2587 mhcordova@tmr.org	4/7/2025	4/16/2025	No response was received from the outreach letter or email follow up.
Table Mountain Rancheria	Bob Pennell	Cultural Resource Dire	P.O. Box 410 Friant, CA, 93626	(559) 325-0351 rpennell@tmr.org	4/7/2025	4/16/2025	Bob Pennell, Cultural Resource Director of the Table Mountain Rancheria, responded on April 17, 2025. He stated that this CEQA project is outside of Table Mountain Rancheria's area of cultural interest and to consult with the Tule River Tribe's Tribal Historic Preservation Officer.
Tule River Indian Tribe	Kerri Vera	Environmental Department Director	P.O. Box 589 Porterville, CA 93258	(559) 783-8892 kerri.vera@tulerivertribe-nsn.gov	4/7/2025	4/16/2025	No response was received from the outreach letter or email follow up.
Tule River Indian Tribe	Shine Nieto	Chairperson	P.O. Box 589 Porterville, CA 93258	(559) 781-4271 Shine.Nieto@tulerivertribe-nsn.gov	4/7/2025	4/16/2025	No response was received from the outreach letter or email follow up.
Tule River Indian Tribe	Neil Peyron	Member	P.O. Box 589 Porterville, CA 93258	(559) 781-4271 neil.peyron@tulrivertribe-nsn.gov	4/7/2025	4/16/2025	No response was received from the outreach letter or email follow up.
Wuksachi Indian Tribe/Eshom Valley Band	Kenneth Woodrow	Chairperson	1179 Rock Haven Ct. Salinas, CA 93906	(831) 443-9702 kwood8934@aol.com	4/7/2025	4/16/2025	No response was received from the outreach letter or email follow up.

Taylored Archaeology

EXAMPLE

April 7, 2025

Bob Pennell, Cultural Resource Director
Table Mountain Rancheria
P.O. Box 410
Friant, CA 93626

RE: Lower Tule River Irrigation District Schott Basin Project, Tulare County, California

Dear Bob Pennell,

Taylored Archaeology is providing cultural resources services to Provost & Pritchard Consulting Group for the proposed Lower Tule River Irrigation District (LTRID) Schott Basin Project (project) in Tulare County, California.

The project proposes to construct a 40-acre basin with a new turnout off the LTRID Casa Ditch and a short run pipe to transport water from the ditch to the basin. This project is subject to the California Environmental Quality Act (CEQA). The site is south of Poplar, on the southeast corner of Road 192 and West Scranton Avenue in Section 11 of Township 22 South, Range 26 East, Mount Diablo Base Line and Meridian of the Woodville, California 7.5-minute USGS quadrangle (please see attached maps).

A search of the Native American Heritage Commission's (NAHC) Sacred Lands File did not indicate the presence of tribal or cultural resources in the immediate project area. Taylored Archaeology also requested a records search of the project area from the California Historic Resources Information System (CHRIS), Southern San Joaquin Valley Information Center (SSJVIC) located at the California State University, Bakersfield. The records search did not identify any previously recorded cultural resources within the project boundary. A field pedestrian survey of the project was conducted on April 5, 2025, and one historic era cultural resource was identified - the Casa Blanca Canal. No archaeological resources were encountered during the pedestrian survey.

The NAHC provided your name and address as someone who may have interest in sharing information regarding sacred sites, tribal cultural resources, or other resources of importance in the project area. Please note this research inquiry/outreach letter is research for a cultural resources investigation and is not government-to-government consultation under Assembly Bill 52 or Section 106. Taylored Archaeology understands and takes measures to protect the confidentiality of archaeological site locations, cemeteries, or sacred places, as required by law. Taylored Archaeology will not disclose locational information in any document available to the general public.

Taylored Archaeology

If you have information that you would like to share, please feel free to contact me by email at csaulsarchaeo@gmail.com, or send a letter to my attention at 6083 N. Figarden Dr., Ste. 616, Fresno, CA 93722. Any response by April 21, 2025, would be greatly appreciated.

Sincerely,

Consuelo Y. Sauls

Consuelo Y. Sauls, M.A., RPA # 41591505
Archaeologist

Gmail **Consuelo Sauls <csaulsarchaeo@gmail.com>**

Native American Outreach- LTRID Schott Basin Project, Tulare County

4 messages

Consuelo Sauls <csaulsarchaeo@gmail.com> Mon, Apr 7, 2025 at 8:12 AM
To: Bob Pennell <rpennell@tmr.org>

Dear Bob Pennell,

Please find attached a letter and maps addressed to the Table Mountain Rancheria for Native American outreach regarding the Lower Tule River Irrigation District Schott Basin Project near Poplar in Tulare County.

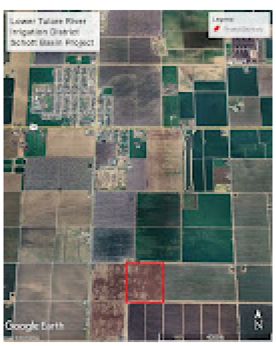
The NAHC provided your name and address as someone who may have interest in sharing information regarding sacred sites, tribal cultural resources, or other resources of importance in the project area. Taylored Archaeology is conducting this outreach for research as part of the cultural resources investigation. Your response is greatly appreciated.

Respectively,

Consuelo Sauls

--
Consuelo Sauls, M.A., RPA 41591505
Archaeologist
Taylored Archaeology
6083 N. Figarden Dr., Ste. 616
Fresno, CA 93722
csaulsarchaeo@gmail.com
(559) 797-1572

3 attachments



Schott Basin Aerial Zoomed Out.jpg
306K

Bob Pennell Outreach Letter- Lower Tule River Irrigation Schott Basin Project.pdf
116K

LTRID Schott Basin.pdf
1497K

Consuelo Sauls <csaulsarchaeo@gmail.com> Wed, Apr 16, 2025 at 1:00 PM
To: Bob Pennell <rpennell@tmr.org>

Dear Bob Pennell,

I am following up on a letter I sent to you by email on April 7, 2025. I am conducting a cultural resources assessment for the Lower Tule River Irrigation District Schott Basin Project in Tulare County, California.

I want to confirm my letter was received and to offer you the opportunity to share any information regarding the project area. If you have any questions, please contact me. Your response is greatly appreciated. Thank you for your time.

Respectively,
Consuelo Sauls
[Quoted text hidden]

Bob Pennell <rpennell@tmr.org> Thu, Apr 17, 2025 at 8:43 AM
To: Consuelo Sauls <csaulsarchaeo@gmail.com>
Cc: "felixe.christman@tulerivertribe-nsn.gov" <felixe.christman@tulerivertribe-nsn.gov>, Alexander Robichaux <arobichaux@tmr.org>, Sara Lively <slively@tmr.org>

Good morning Ms. Sauls,

Thank you for reaching out to Table Mountain Rancheria on the Lower Tule River Irrigation District Schott Basin Project in Tulare County. This CEQA project is outside of TMR's AB52 area of cultural interest. If you have not already, you may wish to consult with the Tule River Tribe's THPO. Cc'd here.

Respectfully,

Robert Pennell

Table Mountain Rancheria

Cultural Resources Director

PO Box 410

Friant California 93626

Office (559) 325-0351

Fax (559) 325-0394

Cell (559) 217-9718

[Quoted text hidden]

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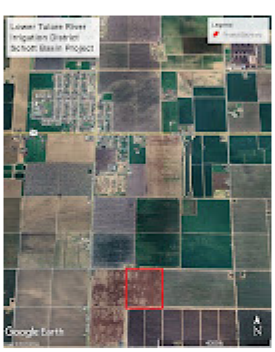
3 attachments



Schott Basin Aerial Zoomed Out.jpg
306K

Bob Pennell Outreach Letter- Lower Tule River Irrigation Schott Basin Project.pdf
116K

LTRID Schott Basin.pdf
1497K

Consuelo Sauls <csaulsarchaeo@gmail.com> Thu, Apr 17, 2025 at 9:08 AM
To: Bob Pennell <rpennell@tmr.org>
Cc: "felixe.christman@tulerivertribe-nsn.gov" <felixe.christman@tulerivertribe-nsn.gov>, Alexander Robichaux <arobichaux@tmr.org>, Sara Lively <slively@tmr.org>

Good morning Bob Pennell,

Thank you for the information. I also reached out to Shine Nieto and Kerri Vera with the Tule River Tribe.

Kind regards,

Consuelo Sauls

Consuelo Sauls, M.A., RPA 41591505
Archaeologist
Taylored Archaeology
6083 N. Figarden Dr., Ste. 616
Fresno, CA 93722
csaulsarchaeo@gmail.com
(559) 797-1572
[Quoted text hidden]

APPENDIX D

DPR 523 Cultural Resource Record Forms

Recorded by: Consuelo Sauls **Date:** 4/22/2025 ☐ Continuation ☒ Update

P1. Other Identifier: Casa Blanca Canal
P2. Location: ☒ **Not for Publication** ☐ **Unrestricted**
a. County: Tulare
b. USGS 7.5' Quad: Woodville, CA **Date:** 1950 (photorevised 1969) **T**22S**; R**26E **;** NE¼ **of** NW¼ **of Sec** 11**; M.D.B.M.**
c. Address:
d. UTM: Zone: 11N ; 307409 **mE/** 3989762 **mN**
e. Other Locational Data: From State Route 99, proceed 9.5 miles east on State Route 190 east towards Porterville, then proceed 1 mile south on Road 192, then 0.5 miles east on West Scranton Avenue, then 0.25 miles south on an unnamed dirt road.

P3a. Description: The Casa Blanca Canal is earthen lined with a levee and dirt road on both sides. This segment of the Casa Blanca Canal is in good condition and well maintained. The canal is currently de-watered and measures approximately 55 feet across the top from berm to berm and 9.5 feet deep. The canal has a trapezoidal shaped profile. A fallowed field and an unpaved access road re located on the northern alignment of the canal. The southern side of the canal includes a vineyard.

This resource is a segment of the Casa Blanca Canal that was originally recorded in 2006 by Catherine Pruett of the Three Girls and A Shovel, who found the resource ineligible for the California Register Historical Resources (CRHR) in 2011 (Pruett 2011). The Casa Blanca Canal was also evaluated by the U.S. Bureau of Reclamation in 2013 and found to be ineligible for inclusion in the National Register of Historic Places (NRHP) (U.S. Bureau of Reclamation 2013). A different segment of the Casa Blanca Canal approximately 0.78 miles to the southwest was recorded and updated in 2016 by Shannon E. Foglia and Rachel Droessler of AECOM, who agreed with previous findings that the canal was not eligible for listing in the CRHR nor the NRHP (Foglia et al. 2017).

P3b. Resource Attributes: HP20

P4. Resources Present: ☐ Building ☒ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other

P5b. Description of Photo: Casa Blanca Canal, Facing East, 4/5/2025.

P6. Date Constructed/Age and Sources: ☒Historic ☐Prehistoric ☐Both

P7. Owner and Address:
Lower Tule River Irrigation District
357 E Olive Ave
Tipton, CA 93272

P8. Recorded by:
Consuelo Y. Sauls, M.A.
Taylored Archaeology
6083 N. Figarden Drive, Ste. 616
Fresno, CA 93722

P9. Date Recorded: April 5, 2025

P10. Survey Type:
Intensive Pedestrian

P11. Report Citation: Sauls, Consuelo Y.
2025 *Phase I Cultural Resources Assessment for the Lower Tule River Irrigation District Schott Basin Project, Tulare County, California.* Taylored Archaeology, Fresno, California. Prepared for Provost & Pritchard Consulting Group, Fresno, California.

Attachments: ☐NONE ☒Location Map ☐Sketch Map ☒Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

Recorded by: Consuelo Sauls **Date:** 4/22/2025 ☐ Continuation ☒ Update

B12. References:

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2013 *Finding of No Significant Impact, Pixley Irrigation District – Canal Modernization Project,* FONSI 12-23 – MP. On file at the U.S. Bureau of Reclamation.

LOCATION MAP

Primary # P-54-005026
HRI#
Trinomial CA-TUL-3047

Page 3 **of** 3 **Resource Name or #:** P-54-005026

Map Name: Woodville, CA, USGS 7.5' quadrangle **Scale:** 1:15,000 ***Date of Map:** 1950 (photorevised 1969)