

Attachment A

CEQA – Initial Study Checklist

Central California Irrigation District

Water Year 2016-2026 Transfer and Exchange from Madera Irrigation District and Chowchilla Water District, including Recaptured San Joaquin River Restoration Program Flows, to the Red Top Area

Draft Initial Study & Mitigated Negative Declaration

Madera County/Fresno County, California
~~February~~ May 2016

Prepared for:

Central California Irrigation District
Los Banos, California

Prepared by:

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CHAPTER 1

Impact Analysis

1 - Impact Analysis

1.1 Aesthetics

Table 1-1. Aesthetics

Aesthetics				
Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒

1.1.1 Regulatory Setting

1.1.1.1 Federal

Federal regulations relating to aesthetics include: Organic Administration Act (1897), Multiple Use – Sustained Yield Act (1960), Wilderness Act (1964), Federal Lands Policy and Management Act (1976), Wild and Scenic Rivers Act. The Proposed Action/Project/ Proposed Action is not subject to any of these regulations since there are no federally designated lands or rivers in the vicinity.

1.1.1.2 State

California Scenic Highway Program

The Scenic Highway Program allows county and city governments to apply to the California Department of Transportation (Caltrans) to establish a scenic corridor protection program which was created by the Legislature in 1963. Its purpose is to protect and enhance the natural scenic beauty of California highways and adjacent corridors, through special conservation treatment. The state laws governing the Scenic Highway Program are found in the Streets and Highways Code, Sections 260 through 263. There are no officially designated state or county scenic highways within Fresno or Madera County that are visible from the proposed Action/Project.

1.1.2 Impact Assessment

I-a) Have a substantial adverse effect on a scenic vista?

No Impact. The proposed Action/Project is located on the SJR and is completely surrounded by flat land consisting of rural and agricultural development. The proposed water conveyance and groundwater recharge Project would support the existing development within the area. The proposed Action/Project would be constructed predominately within the SJR and would connect the Poso Canal to an existing turnout on the

east side of the SJR. The proposed Action/Project is consistent with the aesthetics of nearby urban and agricultural development. There are not any scenic vistas within the vicinity of the proposed Action/Project site. There would be no impact.

I-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 designated or eligible state scenic highways within the proposed Action/Project area. Additionally, there are no designated scenic resources within the Counties of Madera and Fresno. There would be no impact.

I-c) Substantially degrade the existing visual character or quality of the site and its surroundings?

No Impact. The existing visual character of the proposed Action/Project site and its surroundings consist of the SJR and related infrastructure surrounded by rural roadway infrastructure, agricultural and grazing activities and two rural residences. The proposed Action/Project will involve the installation of an underground pipeline. The proposed Action/Project's components will not degrade the existing visual character or quality of the area or its surroundings. Any disturbance to the site would be during construction which would be minor and temporary. There would be no impact.

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

No Impact. There may be low-impact temporary night lighting to ensure visibility and safety for the security of the proposed Action/Project site. However, if used, the lighting would be directed downward and shielded to prevent spillover onto adjacent properties. Therefore, the proposed modified project would not result in a substantial new light source or glare which would adversely affect day or nighttime views in the area. There would be no impact.

1.2 Agricultural Land and Forestry Resources

Table 1-2. Agriculture and Forest Resources

Agriculture and Forest Resources				
Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	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?	☐	☐	☐	☒

1.2.1 Regulatory Setting

1.2.1.1 Federal

Farmland Protection Policy Act: The Natural Resources Conservation Service (NRCS), a federal agency within the U.S. Department of Agriculture (USDA), is the federal agency primarily responsible for implementation of the Farmland Protection Policy Act (FPPA). The FPPA was enacted after the 1981 Congressional report, *Compact Cities: Energy-Saving Strategies for the Eighties* indicated that a great deal of urban sprawl was the result of programs funded by the federal government. The purpose of the FPPA is to minimize federal programs' contributions to the conversion of farmland to non-agricultural uses by ensuring that federal programs are administered in a manner that is compatible with state, local, and private programs designed to protect farmland. Federal agencies are required to develop and review their policies and procedures to implement the FPPA every two years¹.

Farm and Ranch Land Protection Program: The Farm and Ranch Land Protection Program (FRPP), managed by NRCS, provides funds to assist in the purchase of development rights to keep productive farm and rangeland in agricultural uses. Through existing programs, USDA partners with state, tribal, or local governments and non-governmental organizations and trusts to acquire easements or other interests in land from landowners. USDA provides matching funds up to 50 percent of the fair market value of the lands to help convert the development rights to conservation easements. .

¹ USDA, Natural Resource Conservation Service, 2011

To qualify, farmland must be part of a pending offer from a state, tribe, or local farmland protection program; be privately owned; have a conservation plan for highly erodible land; be large enough to sustain agricultural production; be accessible to markets for what the land produces; have adequate infrastructure and agricultural support services; and have surrounding parcels of land that can support long-term agricultural production.

2014 Farm Bill: The Agricultural Act of 2014 (the Act), also known as the 2014 Farm Bill, was signed by President Obama on Feb. 7, 2014. The Act repeals certain programs, continues some programs with modifications, and authorizes several new programs administered by the Farm Service Agency (FSA). Most of these programs are authorized and funded through 2018.

The new Farm Bill builds on historic economic gains in rural America over the past five years, while achieving meaningful reform and billions of dollars in savings for the taxpayer. It allows USDA to continue record accomplishments on behalf of the American people, while providing new opportunity and creating jobs across rural America. Additionally, it enables the USDA to further expand markets for agricultural products at home and abroad, strengthen conservation efforts, create new opportunities for local and regional food systems and grow the biobased economy. It provides a dependable safety net for America's farmers, ranchers and growers. It maintains important agricultural research, and ensures access to safe and nutritious food for all Americans.

1.2.1.2 State

California Environmental Quality Act (CEQA) Definition of Agricultural Lands: Public Resources Code Section 21060.1 defines “agricultural land” for the purposes of assessing environmental impacts using the Farmland Mapping & Monitoring Program (FMMP). The FMMP was established in 1982 to assess the location, quality, and quantity of agricultural lands and the conversion of these lands. The FMMP provides analysis of agricultural land use and land use changes throughout California.

California Department of Conservation, Division of Land Resource Protection: The California Department of Conservation (DOC) applies the NRCS soil classifications to identify agricultural lands, and these agricultural designations are used in planning for the present and future of California’s agricultural land resources. Pursuant to the DOC’s FMMP, these designated agricultural lands are included in the Important Farmland Maps (IFM) used in planning for the present and future of California’s agricultural land resources. The FMMP was established in 1982 to assess the location, quality, and quantity of agricultural lands and the conversion of these lands. The FMMP provides analysis of agricultural land use and land use changes throughout California. The DOC has a minimum mapping unit of 10 acres, with parcels that are smaller than 10 acres being absorbed into the surrounding classifications.

The list below provides a comprehensive description of all the categories mapped by the DOC. Collectively, lands classified as Prime Farmland, Farmland of Statewide Importance, and Unique Farmland is referred to as Farmland².

- **Prime Farmland.** Farmland that has 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.** Farmland similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.

² California Department of Conservation. FMMP – Important Farmland Map Categories. http://www.consrv.ca.gov/dlrp/fmmp/mccu/Pages/map_categories.aspx. Accessed January 2015.

- **Unique Farmland.** 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.** Land of importance to the local agricultural economy as determined by each county's board of supervisors and a local advisory committee.
- **Grazing Land.** Land on which the existing vegetation is suited to the grazing of livestock. This category was developed in cooperation with the California Cattlemen's Association, University of California Cooperative Extension, and other groups interested in the extent of grazing activities. The minimum mapping unit for Grazing Land is 40 acres.
- **Urban and Built-up Land.** 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.** 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 and borrow pits; and water bodies smaller than 40 acres. Vacant and nonagricultural land surrounded on all sides by urban development and greater than 40 acres is mapped as Other Land.

California Land Conservation Act (Williamson Act): The California Land Conservation Act of 1965, commonly referred to as the Williamson Act, is promulgated in California Government Code Section 51200-51297.4, and therefore is applicable only to specific land parcels within the State of California. The Williamson Act 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 uses in return for reduced property tax assessments. Private land within locally designated agricultural preserve areas is eligible for enrollment under Williamson Act contracts. However, an agricultural preserve must consist of no less than 100 acres. However, in order to meet this requirement two or more parcels may be combined if they are contiguous, or if they are in common ownership.

The Williamson Act program is administered by the Department of Conservation (DOC), in conjunction with local governments, which administer the individual contract arrangements with landowners. The landowner commits the parcel to a 10-year period, or a 20-year period for property restricted by a Farmland Security Zone Contract, wherein no conversion out of agricultural use is permitted. Each year the contract automatically renews unless a notice of non-renewal or cancellation is filed. In return, the land is taxed at a rate based on the actual use of the land for agricultural purposes, as opposed to its unrestricted market value. An application for immediate cancellation can also be requested by the landowner, provided that the proposed immediate cancellation application is consistent with the cancellation criteria stated in the California Land Conservation Act and those adopted by the affected county or city. Non-renewal or immediate cancellation does not change the zoning of the property. Participation in the Williamson Act program is dependent on county adoption and implementation of the program and is voluntary for landowners³.

Sustainable Groundwater Management Act of 2014: The California Legislature recently enacted the Sustainable Groundwater Management Act of 2014 ("Act"). The Act provides authority for local agency management of groundwater, and requires implementation of plans to meet the goal of groundwater sustainability established

³ California Department of Conservation. Williamson Act Program. <http://www.conservation.ca.gov/dlrp/lca/Pages/Index.aspx>. Accessed January 2015.

by the Act within basins of high- and medium-priority which includes the basins underlying the District (Groundwater Sub-Basin number 5-22.05 (Chowchilla) and 5-22.07 (Delta-Mendota), within the San Joaquin River Hydrologic Region Chowchilla and Delta-Mendota are both considered high priority). The Act's goal of sustainability is met by implementation of sustainability plans that identify and cause implementation of measures targeted to ensure that the applicable basin is operated within its safe yield. (Water Code § 10721(t)) Safe yield is defined as the maximum quantity of water that can be withdrawn annually from the groundwater supply without causing an undesirable result, and includes within the definition of "undesirable result" chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply and significant and unreasonable reduction in groundwater storage. (Water Code § 10721(w)) The Act recognizes that fallowing of agricultural lands and reduction of pumping may be required to achieve groundwater sustainability. (Water Code §§ 10726.2(c), 10726.4(a))

Governor's Emergency Drought Declaration: With California facing one of the most severe droughts on record, Governor Brown declared a drought State of Emergency in January 2014 and directed state officials to take all necessary actions to prepare for water shortages⁴.

California Water Plan: The California Water Plan provides a collaborative planning framework for elected officials, agencies, tribes, water and resource managers, businesses, academia, stakeholders, and the public to develop findings and recommendations and make informed decisions for California's water future. The plan, updated every five years, presents the status and trends of California's water-dependent natural resources; water supplies; and agricultural, urban, and environmental water demands for a range of plausible future scenarios. The California Water Plan also evaluates different combinations of regional and statewide resource management strategies to reduce water demand, increase water supply, reduce flood risk, improve water quality, and enhance environmental and resource stewardship. The evaluations and assessments performed for the plan help identify effective actions and policies for meeting California's resource management objectives in the near term and for several decades to come.

Update 2013 of the California Water Plan is State government's strategic plan for understanding, managing and developing water resources statewide for current and future generations. Prepared over the past five years with the involvement of dozens of State and federal agencies and hundreds of stakeholders from diverse communities, it sets forth a suite of actions that together would improve the resilience and sustainability of our regional water resources into the future. The multi-volume plan also serves as a compendium of facts about where California gets its water, how it is used, who pays for it, and the many risks and opportunities of our complex, interconnected water management system.

Update 2013 advances the Governor's Water Action Plan, released by the administration of Governor Edmund G. Brown Jr. in January 2014. The governor's five-year plan sets forth 10 priority actions to meet urgent needs and set the foundation for sustainable management of California's water resources. The California Water Plan Update 2013 plans to the year 2050. There are 17 cross-cutting objectives and over 300 specific actions to reinforce the implementation of the Governor's Water Action Plan. The goals of that Plan are to make conservation a way of life, provide safe drinking water and expand water storage capacity, improve public safety and secure wastewater systems for all communities, and foster environmental stewardship. A hallmark of the Update 2013 plan is the focus on the need for stable, effective funding sources to invest in water innovation and infrastructure (natural and built).⁵

California Water Action Plan: The California Water Action Plan – released by Governor Brown in January 2014 – is a roadmap for the first five years of the state's journey toward sustainable water management. Implementation during the first year was marked by significant achievements. In 2014 we saw overwhelming voter approval for a \$7.545 billion water bond (Proposition 1 in November 2014) and passage of historic

⁴ California Drought Update. <http://ca.gov/drought/> Accessed March 16, 2015.

⁵ California Department of Water Resources. DWR-led Process Updates California's Strategic Water Roadmap. October 20, 2014. <http://www.waterplan.water.ca.gov/cwpu2013/final/index.cfm>

groundwater legislation that will provide much needed tools, financial assistance and technical support to assist regions across the state in achieving sustainable groundwater management at the local level. Additionally, 2014 brought a renewed focus on the importance of reinvesting in our water management systems and watersheds in order to address the current drought challenges and prepare for future uncertainties. State agencies undertook numerous actions in response to the drought, including stepping up conservation programs to encourage Californians to reduce their water use by at least 20 percent and enacting measures to protect water supply and water quality. A review of state agency actions throughout 2014 shows that more than 100 efforts furthering the Action Plan were either continued or initiated. This report details the origins of the Action Plan, highlights achievements to date, and outlines activities for the next four years.

Key actions identified in the Plan include:

- Make conservation a California way of life.
- Increase regional self-reliance and integrated water management across all levels of government.
- Achieve the co-equal goals for the Delta.
- Protect and restore important ecosystems.
- Manage and prepare for dry periods.
- Expand water storage capacity and improve groundwater management.
- Provide safe water for all communities.
- Increase flood protection.
- Increase operational and regulatory efficiency.
- Identify sustainable and integrated financing opportunities.⁶

Farmland Security Zone Act: The Farmland Security Zone Act is similar to the Williamson Act and was passed by the California State Legislature in 1999 to ensure that long-term farmland preservation is part of public policy. Farmland Security Zone Act contracts are sometimes referred to as “Super Williamson Act Contracts.” Under the provisions of this act, a landowner already under a Williamson Act contract can apply for Farmland Security Zone status by entering into a contract with the county. Farmland Security Zone classification automatically renews each year for an additional 20 years. In return for a further 35% reduction in the taxable value of land and growing improvements (in addition to Williamson Act tax benefits), the owner of the property promises not to develop the property into nonagricultural uses⁷.

Forestry Resources: State regulations regarding forestry resources are not relevant to the proposed Action/Project because no forestry resources exist in the proposed Action/Project’s vicinity.

1.2.2 Impact Assessment

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

No Impact. Pursuant to CEQA Statute §21060.1, “Agricultural land” means prime farmland, farmland of statewide importance, or unique farmland, as defined by the United States Department of Agriculture land inventory and monitoring criteria. The proposed Action/Project’s new turnout at Poso Canal and approximately 329 LF of the proposed underground pipeline is located within lands designated by the FMMP as Natural Vegetation, the remaining portion of the pipeline that is not in the water channel (approximately

⁶ State of California Natural Resources Agency, California Department of Food & Agriculture and California Environmental Protection Agency. California Water Action Plan. January 2014. http://resources.ca.gov/california_water_action_plan/

⁷ Farmland Security Zone Act. http://www.consrv.ca.gov/dlrp/lca/farmland_security_zones/Pages/Index.aspx
Accessed January 21, 2015.

97 LF) and the staging area is located within lands designated by the FMMP as Semi-Agricultural. Figure 1-1 Farmland Map. The construction of the new turnout and underground pipeline would not result in the removal of crops. The proposed Action/Project will not result in the conversion of Prime Farmland, Unique Farmland, or Farmland of Significant Importance to what is designated by the California Department of Conservation as non-agricultural use. Therefore, there will be no impact.

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

No Impact. The proposed Action/Project would support surrounding agricultural uses by ensuring the efficient delivery and use of surface water. The majority of the proposed Action/Project will be an underground pipeline. Therefore, the Project would not conflict with agricultural zoning or the Williamson Act and therefore there will be no impact.

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

No Impact. No forest or timberland is located on or near the proposed Action/Project. There will be no impact.

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

No Impact. No forest land is on or near the proposed Action/Project site. There would be no impact.

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

No Impact. As discussed above in Impact II (a), the proposed agricultural-related surface water conveyance infrastructure of the proposed Action/Project would not result in other changes in the existing environment (i.e. growth inducing impacts) which would convert additional land to non-agricultural or non-forest use. The purpose of the proposed Action/Project will improve ground water supply and help to reduce subsidence within the Red Top Area. Therefore, there would be no impact.

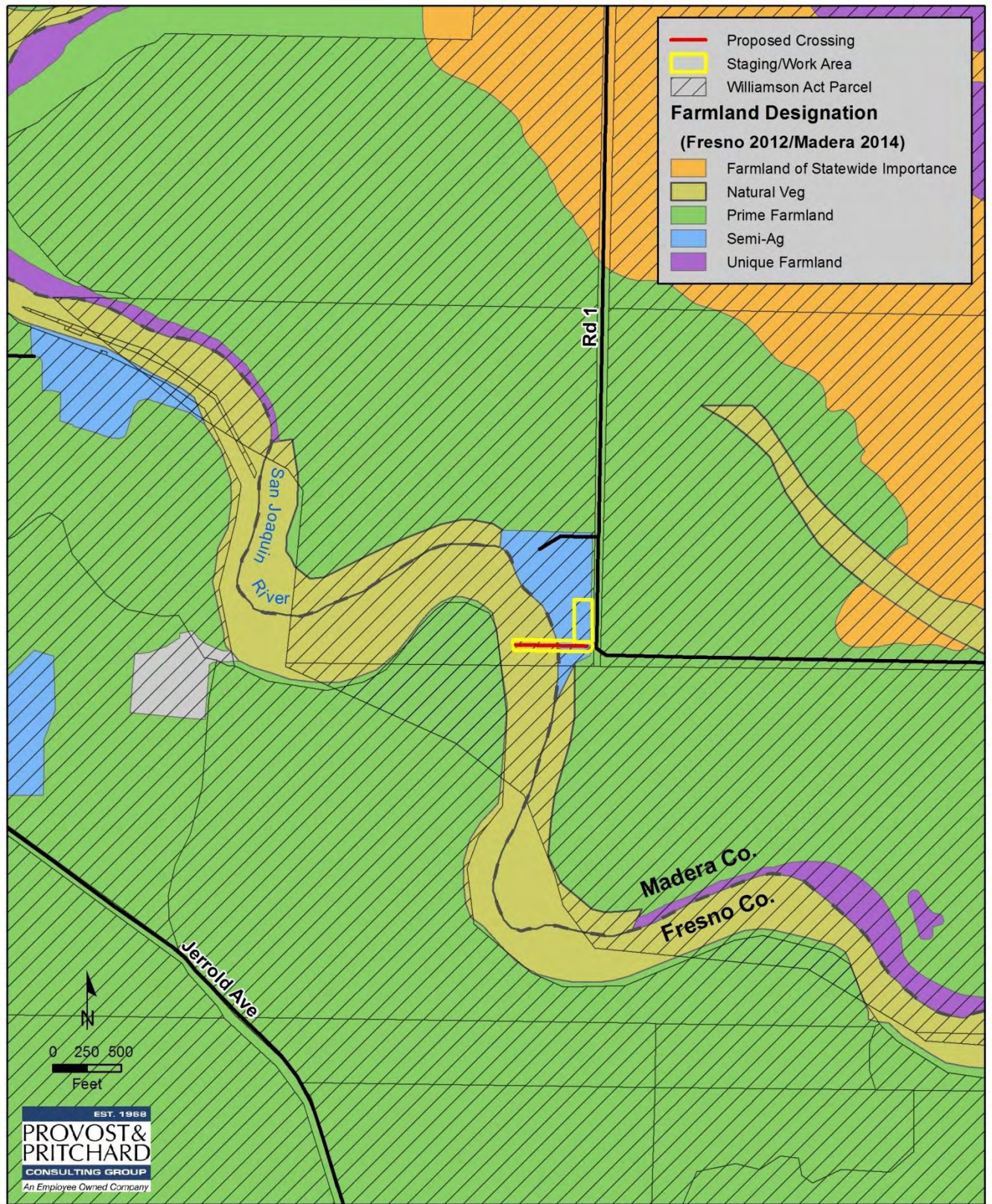


Figure 1-1 Farmland Map

1.3 Air Quality

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

Table 1-3. Air Quality

Air Quality				
Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐
c) 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 (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

1.3.1 Regulatory Setting

1.3.1.1 Federal

United States Environmental Protection Agency: At the federal level, the U.S. EPA has been charged with implementing national air quality programs. The U.S. EPA's air quality mandates are drawn primarily from the FCAA, which was signed into law in 1970. Congress substantially amended the FCAA in 1977 and again in 1990.

Federal Clean Air Act: The FCAA required the U.S. EPA to establish National Ambient Air Quality Standards (NAAQS), and also set deadlines for their attainment. Two types of NAAQS have been established: primary standards, which protect public health, and secondary standards, which protect public welfare from non-health-related adverse effects, such as visibility restrictions.

The FCAA also required each state to prepare an air quality control plan referred to as a State Implementation Plan (SIP). The FCAA Amendments of 1990 added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is periodically modified to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins as reported by their jurisdictional agencies. The U.S. EPA has responsibility to review all state SIPs to determine conformance with the mandates of the FCAA, and the amendments thereof, and determine if implementation will achieve air quality goals. If the U.S. EPA determines a SIP to be inadequate, a Federal Implementation Plan (FIP) may be prepared for the nonattainment area that imposes additional control measures.

1.3.1.2 State

California Air Resources Board: The CARB is the agency responsible for coordination and oversight of state and local air pollution control programs in California and for implementing the California Clean Air Act of 1988. Other ARB duties include monitoring air quality (in conjunction with air monitoring networks maintained by air pollution control districts and air quality management districts, establishing California Ambient Air Quality Standards (CAAQS), which in many cases are more stringent than the NAAQS, and setting emissions standards for new motor vehicles. The emission standards established for motor vehicles differ depending on various factors including the model year, and the type of vehicle, fuel and engine used.

California Clean Air Act: The CCAA requires that all air districts in the state endeavor to achieve and maintain CAAQS for Ozone, CO, SO₂, and NO₂ by the earliest practical date. The CCAA specifies that districts focus particular attention on reducing the emissions from transportation and area-wide emission sources, and the act provides districts with authority to regulate indirect sources. Each district plan is required to either (1) achieve a five percent annual reduction, averaged over consecutive 3-year periods, in district-wide emissions of each non-attainment pollutant or its precursors, or (2) to provide for implementation of all feasible measures to reduce emissions. Any planning effort for air quality attainment would thus need to consider both state and federal planning requirements.

Table 1-4. Summary of Ambient Air Quality Standards & Attainment Designation

Summary of Ambient Air Quality Standards & Attainment Designation					
Pollutant	Averaging Time	California Standards*		National Standards*	
		Concentration*	Attainment Status	Primary	Attainment Status
Ozone (O ₃)	1-hour	0.09 ppm	Non- Attainment	–	Non-Attainment (Extreme)**
	8-hour	0.070 ppm		0.075 ppm	
Particulate Matter (PM ₁₀)	AAM	20 µg/m3	Non-Attainment	–	Attainment
	24-hour	50 µg/m3		150 µg/m3	
Fine Particulate Matter (PM _{2.5})	AAM	12 µg/m3	Non-Attainment	12 µg/m3	Non-Attainment
	24-hour	No Standard		35 µg/m3	
Carbon Monoxide (CO)	1-hour	20 ppm	Attainment/ Unclassified	35 ppm	Attainment/ Maintenance
	8-hour	9 ppm		9 ppm	
	8-hour (Lake Tahoe)	6 ppm		–	
Nitrogen Dioxide (NO ₂)	AAM	0.030 ppm	Attainment	0.053 ppm	Attainment/ Unclassified
	1-hour	0.18 ppm		0.100 ppb	
Sulfur Dioxide (SO ₂)	AAM	–	Attainment	0.03 ppm	Attainment/ Unclassified
	24-hour	0.04 ppm		0.14 ppm	
	3-hour	–		--	
	1-hour	0.25 ppm		75 ppb	
Lead	30-day Average	1.5 µg/m3	Attainment	–	No Designation/ Classification
	Calendar Quarter	–		1.5 µg/m3	
	Rolling 3-Month Average	–		0.15 µg/m3	
Sulfates	24-hour	25 µg/m3	Attainment	No Federal Standards	
Hydrogen Sulfide	1-hour	0.03 ppm (42 µg/m3)	Unclassified		
Vinyl Chloride	24-hour	0.01 ppm (26 µg/m3)	Attainment		
Visibility-Reducing Particle Matter	8-hour	Extinction coefficient: 0.23/km-visibility of 10 miles or more (0.07-30 miles or more for Lake Tahoe) due to particles when the relative humidity is less than 70%.	Unclassified		

* For more information on standards visit :<http://www.arb.ca.gov/research/aaqs/aaqs2.pdf>

** No federal 1-hour standard. Reclassified extreme nonattainment for the federal 8-hour standard May 5, 2010.

***Secondary Standard

Source: ARB 2015; SJVAPCD 2015

Assembly Bills 1807 & 2588 - Toxic Air Contaminants: Within California, TACs are regulated primarily through AB 1807 (Tanner Air Toxics Act) and AB 2588 (Air Toxics Hot Spots Information and Assessment Act of 1987). The Tanner Air Toxics Act sets forth a formal procedure for ARB to designate substances as TACs. This includes research, public participation, and scientific peer review before ARB designates a substance as a TAC. Existing sources of TACs that are subject to the Air Toxics Hot Spots Information and Assessment Act are required to: (1) prepare a toxic emissions inventory; (2) prepare a risk assessment if emissions are significant; (3) notify the public of significant risk levels; and (4) prepare and implement risk reduction measures.

San Joaquin Valley Air Pollution Control District: The SJVAPCD is the agency primarily responsible for ensuring that NAAQS and CAAQS are not exceeded and that air quality conditions are maintained in the SJVAB, within which the proposed Action/Project is located. Responsibilities of the SJVAPCD include, but are not limited to, preparing plans for the attainment of ambient air quality standards, adopting and enforcing rules and regulations concerning sources of air pollution, issuing permits for stationary sources of air pollution, inspecting stationary sources of air pollution and responding to citizen complaints, monitoring ambient air quality and meteorological conditions, and implementing programs and regulations required by the FCAA and the CCAA.

The SJVAPCD Rules and Regulations that are applicable to the proposed Action/Project include, but are not limited to, the following:

Regulation VIII (Fugitive Dust Prohibitions), Regulation VIII (Rules 8011-8081): This regulation is a series of rules designed to reduce particulate emissions generated by human activity, including construction and demolition activities, carryout and trackout, paved and unpaved roads, bulk material handling and storage, unpaved vehicle/traffic areas, open space areas, etc. If a non-residential area is 5.0 or more acres in area, a Dust Control Plan must be submitted as specified in Section 6.3.1 of Rule 8021. Additional requirements may apply, depending on total area of disturbance.

Regulatory Attainment Designations

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

The state and national attainment status designations pertaining to the SJVAB are summarized in

Table 1-5. The SJVAB is currently designated as a nonattainment area with respect to the state PM₁₀ standard, ozone, and PM_{2.5} standards. The SJVAB is designated nonattainment for the national 8-hour ozone and PM_{2.5} standards. On September 25, 2008, the U.S. EPA redesignated the San Joaquin Valley to attainment for the PM₁₀ NAAQS and approved the PM₁₀ Maintenance Plan.

1.3.2 Impact Assessment

III-a) Conflict with or obstruct implementation of the applicable air quality plan?

Less Than Significant Impact. The proposed Action/Project will not conflict with or obstruct the implementation of the air quality management standards. Standards set by the Air District, CARB, and Federal agencies relating to the proposed Action/Project will continue to apply. A Fugitive Dust Control Plan will be submitted to the Air District to comply with Regulation VIII prior to the initiation of construction. Therefore, the proposed Action/Project will not conflict with the Air District plans and any impacts will be less than significant.

III-b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Less Than Significant Impact. Typically, construction and operation of a project generates emissions of various air pollutants, including criteria pollutants such as carbon monoxide (CO), ozone precursors such as nitrous oxides (NOX) and reactive organic gases (ROG) or Volatile Organic Compounds (VOC), particulate matter less than 10 microns in diameter (PM₁₀), and PM_{2.5}, as well as sulfur oxides (SOX). For example, typical emission sources during construction include equipment exhaust, dust from wind erosion, earthmoving activities, and vehicle movements.

To assist in evaluating impacts of project-specific air quality emissions, the SJVAPCD has adopted thresholds of significance for criteria pollutant emissions, expressed in units of tons per year (tons/yr), as presented in **Table 1-5.**

Table 1-5. SJVAPCD Thresholds of Significance

SJVAPCD Thresholds of Significance		
Pollutant	Construction Emissions (tons/yr)	Operation Emissions (tons/yr)
ROG	10	10
NOx	10	10
CO	100	100
Sox	27	27
PM10	15	15
PM2.5	15	15

Source: SJVAPCD, May 2015.

Construction-Related Emissions:

The proposed Action/Project will allow for the construction and operation of the following: a new turn-out from the Poso Canal; and approximately 425 LF of underground pipeline. The proposed Action/Project construction will require the use of scrapers, graders, compactors, trenchers, backhoes, forklifts, front end loaders, water trucks, and materials and equipment hauling trucks. The aforementioned vehicles are diesel- and gasoline-powered equipment that would generate emissions of criteria pollutants. Proposed

Action/Project construction activities also represent sources of fugitive dust, which includes PM emissions. The estimated construction period (40 working days) would generate air pollutant emissions intermittently within the site, and in the vicinity of the site. As a result, construction is a potential short-term concern because the proposed Action/Project is in a nonattainment area for ozone and PM.

Construction of the proposed Action/Project is estimated to require approximately 10 - 12 workers who would work in single shifts, five days per week. Construction is estimated to start in 2016 and would be completed within approximately 40 working days. An estimated 20 total construction worker truck trips (10 round-trips) are anticipated, with a maximum of 2 daily truck trips (1 roundtrip) for materials delivery during construction of the proposed Action/Project.

The proposed Action/Project will comply with Air District Rule 8021 for construction and earthmoving activities.

The proposed Action/Project's short-term construction emissions were estimated using the California Emissions Estimator Model (CalEEMod) version 2013.2.2 software – a statewide model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify air quality emissions, including GHG emissions, from land use projects. The model applies inherent default values for various land uses, including trip generation rates based on the ITE Manual, vehicle mix, trip length, average speed, etc. However, as the proposed Action/Project is not a typical land use in CalEEMod, Project-specific data was input into the model (e.g., construction phases and timing, equipment, vehicle trips, etc.). The proposed Action/Project's unmitigated construction-related emissions have been estimated using CalEEMod and are presented in **Table 1-6** and the output files can be seen in Appendix A.

Table 1-6. Maximum Unmitigated Proposed Action/Project Construction-Related Emissions

Maximum Unmitigated Proposed Action/ Proposed Project Construction Related Emissions		
Pollutant	Project Construction Emissions (tons/yr)	SJVAPCD Thresholds of Significance (tons/yr)
ROG (VOC)	0.0739	10
NO _x	0.6236	10
CO	0.4836	100
SO _x	0.0006	27
PM ₁₀	0.1266	15
PM _{2.5}	0.0839	15

Source: CalEEMod, September 2015 (see Appendix A)

Operational Emissions

Upon completion of construction, the turnout and underground pipeline would not require any additional operation and/or maintenance tasks. Any trips to the new turnout would be handled during ongoing maintenance trips already occurring. Accordingly, air quality violations would not occur and the impact would be less than significant.

III-c) 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 (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

Less Than Significant Impact. As discussed Impact Assessment III-b, the proposed Action/Project would result in the generation of criteria pollutants during construction; however, during construction, air quality

impacts would be less than SJVAPCD thresholds for non-attainment pollutants. Accordingly, net increases of non-attainment criteria pollutants would be less than significant.

III-d) Expose sensitive receptors to substantial pollutant concentrations?

Less Than Significant Impact. The SJVAPCD defines sensitive receptors as: facilities that house or attract children, the elderly, and people with illnesses, or others who are especially sensitive to the effects of air pollutants. Hospitals, schools, convalescent facilities, and residential areas are examples of sensitive receptors⁸. The nearest sensitive receptor to the proposed Action/Project site is located approximately 230 feet from the staging area.

As discussed in Impact III-b, the proposed Action/Project would result in the generation of criteria pollutants during construction; however, these impacts would be less than SJVAPCD thresholds for non-attainment pollutants and operation of the Project would not exceed emissions thresholds for criteria pollutants.

Per CARB's Diesel Risk Reduction Plan⁹, the cancer risk associated with being exposed at a distance of 20 meters (65 feet) to a truck stop (the closest comparable use listed in figure 2) for 70 years is approximately 75 to 150 chances in a million. At 60 meters (200 feet), the risk of cancer from exposure to diesel particulate matter goes down by about 50 percent¹⁰.

Any risk of cancer from exposure to diesel particulate matter at 230 feet to a construction site for a total of 40 working days is negligible at best since exposure for 70 continuous years creates a risk of only about 0.005 percent. Therefore, any exposure of sensitive receptors to pollutant concentrations would be less than significant.

III-e) Create objectionable odors affecting a substantial number of people?

Less than Significant. Construction of the proposed Action/Project would result in odors associate with diesel fuel consumption. However, these odors will be temporary and are commonly associated with infrastructure projects. Therefore, less than significant would occur.

⁸ GAMAQI, July 2014, Pg. 65.

⁹ California Air Resources Board. Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles. <http://www.arb.ca.gov/diesel/documents/rpplfinal.pdf>. Page 17. Accessed September 2014.

¹⁰ South Coast Air Quality Management District's Air Quality Issues Regarding Land Use. <http://www.aqmd.gov/docs/default-source/planning/air-quality-guidance/chapter-2---air-quality-issues-regarding-land-use.pdf?sfvrsn=2> Page 2-6. Accessed September 2014

1.4 Biological Resources

Table 1-7. Biological Resources

Biological Resources				
Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	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?	☐	☐	☐	☒

1.4.1 Regulatory Setting

1.4.1.1 Federal

Federal Endangered Species Act of 1973 (16 U.S.C. 1531 through 1543): The Endangered Species Act (ESA) and subsequent amendments provide guidance for the conservation of endangered and threatened species and the ecosystems upon which they depend. The ESA defines species as “threatened” or “endangered” and provides regulatory protection for listed species. The federal ESA provides a program for conservation and recovery of threatened and endangered species, and conservation of designated critical habitat that the United States Fish and Wildlife Service (USFWS) has determined is required for the survival and recovery of these listed species.

Migratory Bird Treaty Act (16 U.S.C. 703 through 711): The Migratory Bird Treaty Act (MBTA) is the domestic law that affirms, or implements, the United States’ commitment to four international conventions (with Canada, Mexico, Japan, and Russia) for the protection of a shared migratory bird resource. The MBTA makes

it unlawful at any time, by any means or in any manner, to pursue, hunt, take, capture, or kill migratory birds. The law also applies to the removal of nests occupied by migratory birds during the breeding season. The MBTA makes it unlawful to take, pursue, molest, or disturb these species, their nests, or their eggs anywhere in the United States.

Federal Clean Water Act: The Federal CWA Section 404 regulates the discharge of dredged and fill materials into waters of the United States, which include oceans, bays, rivers, streams, lakes, ponds, and wetlands. Project proponents must obtain a permit from the U.S. Army Corps of Engineers (USACE) for all discharges of dredged or fill material into waters of the United States before proceeding with a proposed activity. Before any actions that may impact surface waters are carried out, a delineation of jurisdictional waters of the United States must be completed following USACE protocols (Environmental Laboratory 1987) to determine whether a particular Project Area encompasses wetlands or other waters of the United States that qualify for CWA protection. These include any or all of the following:

- Areas within the ordinary high water mark of a stream, including non-perennial streams with a defined bed and bank, and any stream channel that conveys natural runoff, even if it has been realigned; or
- Seasonal and perennial wetlands, including coastal wetlands.

Wetlands are defined for regulatory purposes as areas “inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (33 CFR 328.3; 40 CFR 230.3).

Under the CWA 404 permit program, general permits (known as nationwide permits) have been adopted, and coverage under nationwide permits is possible when the amount of fill is relatively small (usually less than 0.5 acre).

1.4.1.2 State

California Endangered Species Act (Fish and Game Code 2050 et seq.): The California Endangered Species Act (CESA) establishes the policy of the State to conserve, protect, restore, and enhance threatened or endangered species and their habitats. CESA mandates that State agencies should not approve projects that would jeopardize the continued existence of threatened or endangered species if reasonable and prudent alternatives are available that would avoid jeopardy. There are no State agency consultation procedures under CESA. For projects that affect both a State and federal listed species, compliance with the ESA will satisfy CESA if the Department of Fish and Game (CDFG) determines that the federal incidental take authorization is “consistent” with CESA under Fish and Game Code Section 2080.1. For projects that will result in a take of a State-only listed species, the project proponent must apply for a take permit under Section 2081(b).

Sections 2080 and 2081: Section 2080 of the California State Fish and Game Code (the Code) states, “No person shall import into this state [California], export out of this state, or take, possess, purchase, or sell within this state, any species, or any part or product thereof, that the Commission [State Fish and Game Commission] determines to be an endangered species or threatened species, or attempt any of those acts, except as otherwise provided in this chapter, or the Native Plant Protection Act, or the California Desert Native Plants Act.” Pursuant to Section 2081 of the Code, the CDFG may authorize individuals or public agencies to import, export, take, or possess, and State-listed endangered, threatened, or candidate species. These otherwise prohibited acts may be authorized through permits or Memoranda of Understanding if: (1) the take is incidental to an otherwise lawful activity, (2) impacts of the authorized take are minimized and fully mitigated, (3) the permit is consistent with any regulations adopted pursuant to any recovery plan for the species, and (4) the project proponent ensures adequate funding to implement the measures required by the CDFG. The CDFG makes this determination based on available scientific information and considers the ability of the species to survive and reproduce.

Sections 3503 and 3503.5: Under these sections of the Fish and Game Code, the project proponent is not allowed to conduct activities that would result in the taking, possessing, or destroying of any birds-of-prey, taking or possessing of any migratory non-game bird as designated in the Migratory Bird Treaty Act, or the taking, possessing, or needlessly destroying of the nest or eggs of any raptors or non-game birds protected by the Migratory Bird Treaty Act, or the taking of any non-game bird pursuant to Fish and Game Code Section 3800.

Native Plant Protection Act (Fish and Game Code 1900 through 1913): California's Native Plant Protection Act (NPPA) requires all State agencies to utilize their authority to carry out programs to conserve endangered and rare native plants. Provisions of the NPPA prohibit the taking of listed plants from the wild and require notification of the CDFG at least 10 days in advance of any change in land use. This allows CDFG to salvage listed plant species that would otherwise be destroyed. The project proponent is required to conduct botanical inventories and consult with CDFG during project planning to comply with the provisions of this act and sections of CEQA that apply to rare or endangered plants.

1.4.1.3 Local

2000 Fresno County General Plan

The 2000 Fresno County General Plan includes the following policies that address biological impacts:

Policy OS-E.9 Prior to approval of discretionary development permits, the County shall require, as part of any required environmental review process, a biological resources evaluation of the project site by a qualified biologist. The evaluation shall be based upon field reconnaissance performed at the appropriate time of year to determine the presence or absence of significant resources and/or special-status plants or animals. Such evaluation will consider the potential for significant impact on these resources and will either identify feasible mitigation measures or indicate why mitigation is not feasible.

Policy OS-E.18 The County should preserve, to the maximum possible extent, areas defined as habitats for rare or endangered animal and plant species in a natural state consistent with State and Federal endangered species laws.

Policy OS-E.19 The County should preserve areas identified as habitats for rare or endangered plant and animal species primarily through the use of open space easements and appropriate zoning that restrict development in these sensitive areas.

Policy OS-F.5 The County shall establish procedures for identifying and preserving rare, threatened, and endangered plant species that may be adversely affected by public or private development projects. The County shall require, as part of the environmental review process, a biological resources evaluation of the project site by a qualified biologist. The evaluation shall be based on field reconnaissance performed at the appropriate time of year to determine the presence or absence of significant plant resources and/or special-status plant species. Such evaluation shall consider the potential for significant impact on these resources and shall either identify feasible mitigation measures or indicate why mitigation is not feasible.

Policy OS-F.7 The County should encourage landowners to maintain natural vegetation or plant suitable vegetation along fence lines, drainage and irrigation ditches and on unused or marginal land for the benefit of wildlife.

Madera County General Plan – Adopted October 24, 1995

The following goal and policies contained within the Madera County General Plan Agricultural and Natural Resources Section and pertain to biological resources:

Madera County General Plan Section 5.D: Wetland and Riparian Areas

Goal 5.D: To protect wetland communities and related riparian areas throughout Madera County as valuable resources.

Policy 5.D.2: The County shall require new development to mitigate wetland loss in both regulated and non-regulated wetlands through any combination of avoidance, minimization, or compensation. The County shall support mitigation banking programs that can provide the opportunity to mitigate impacts to rare, threatened, and endangered species and/or the habitat which supports these species in wetland and riparian areas.

Policy 5.D.3: Development should be designed in such a manner that pollutants and siltation will not significantly adversely affect the value or function of wetlands.

Policy 5.D.4: The County shall require riparian protection zones around natural watercourses. Riparian protection zones shall include the bed and bank of both low and high flow channels and associated riparian vegetation, the band of riparian vegetation outside the high flow channel, and buffers of 100 feet in width as measured from the top of bank of unvegetated channels and 50 feet in width as measured from the outer edge for canopy of riparian vegetation. Exceptions may be made in existing developed areas where existing development and lots are located within the setback areas.

Policy 5.D.5: The County shall strive to identify and conserve remaining upland habitat areas adjacent to wetlands and riparian areas that are critical to the feeding or nesting of wildlife species associated with these wetland and riparian areas.

Policy 5.D.6: The County shall require new private or public developments to preserve and enhance existing native riparian habitat unless public safety concerns require removal of habitat for flood control or other public purposes. In cases where new private or public development results in modification or destruction of riparian habitat for purposes of flood control, the developers shall be responsible for creating new riparian habitats within or near the project area at a ratio of three acres of new habitat for every acre destroyed.

Policy 5.D.7: The County shall support the management of wetland and riparian plant communities for passive recreation, groundwater recharge, nutrient catchment, and wildlife habitats. Such communities shall be restored, where possible.

Goal 5.E: To protect, restore, and enhance habitats that support fish and wildlife species so as to maintain populations at viable levels.

Policy 5.E.1: The County shall identify and protect critical nesting and foraging areas, important spawning grounds, migratory routes, waterfowl resting areas, oak woodlands, wildlife movement corridors, and other unique wildlife habitats critical to protecting and sustaining wildlife populations.

Policy 5.E.2: The County shall require development in areas known to have particular value for wildlife to be carefully planned and, where possible, located so that the reasonable value of the habitat for wildlife is maintained.

Policy 5.E.3: The County shall encourage private landowners to adopt sound wildlife habitat management practices, as recommended by the California Department of Fish and Game (California Department of Fish and Wildlife) officials and the U.S. Fish and Wildlife Service.

Policy 5.E.4: The County shall support preservation of the habitats of rare, threatened, endangered, and/or other special-status species. The County shall consider developing a formal habitat conservation plan in consultation with federal and state agencies, as well as

other resource conservation organizations. Such a plan would provide a mechanism for the acquisition and management of lands supported by threatened and endangered species.

Policy 5.E.5: The County shall support the maintenance of suitable habitats for all indigenous species of wildlife through maintenance of habitat diversity.

Policy 5.E.6: The County shall support the maintenance of suitable habitats for all indigenous species of wildlife through maintenance of habitat diversity.

Policy 5.E.10: Prior to approval of discretionary development permits involving parcels within a significant ecological resource area, the County shall require, as part of the environmental review process, a biotic resource evaluation of the sites by a qualified biologist. The evaluation shall be based upon field reconnaissance performed at the appropriate time of year to determine the presence or absence of rare, threatened, or endangered species of plants or animals. Such evaluation will consider the potential for significant impact on these resources and will either identify feasible measures to mitigate such impacts or indicate why mitigation is not feasible.

Goal 5.F: To preserve and protect the valuable vegetation resources of Madera County.

Policy 5.F.1: The County shall encourage landowners and developers to preserve the integrity of existing terrain and natural vegetation in visually sensitive areas such as hillsides, ridges, and along important transportation corridors.

Policy 5.F.3: The County shall support the preservation of outstanding areas of natural vegetation, including, but not limited to, oak woodlands, riparian areas, and vernal pools.

1.4.2 Impact Assessment

IV-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?

Less Than Significant with Mitigation Incorporation. A reconnaissance-level field survey of the proposed Action/Project was conducted on November 9, 2015 by Live Oak Associates, Inc. (LOA) biologist Jeff Gurule. The survey consisted of walking and driving the project area and adjacent lands. During this time, principal land uses of the site were identified and the constituent plants and animals were noted on a field datasheet. The field survey conducted for this study was sufficient to assess the significance of possible biological impacts associated with the development plans for the project site (Appendix B). The proposed Action/Project site is located within the United States Geological Survey (USGS) Santa Rita Bridge 7.5-minute topographic quadrangle. Based on a review of information from the California Department of Fish and Game Natural Diversity Database (CNDDDB) RareFind5 data (CDFW 2014) for this quadrangle, and the eight adjacent quadrangles, there are 16 plant species with federal and state-listed status, and/or California Native Plant Society (CNPS) listed status, and 34 species of wildlife that are federally or state-listed or have other special status that are reported from historical information for the nine quadrangles as shown in **Table 1-8** and **Table 1-9**.

Table 1-8. Federal and State-Listed Status Plant Species

Federal and State Listed Status Plant Species			
Species	Status	Habitat	*Occurrence on the Project Site
Palmate-bracted Bird's beak (<i>Cordylanthus palmatus</i>)	FE, CE, CNPS 1B	Occurs in alkaline grasslands or scrub; blooms May to October	Absent. Suitable habitat for this species is absent from the project site. Furthermore, no recorded occurrences exist along the SJR corridor for the species.
Delta Button Celery (<i>Eryngium racemosum</i>)	CE, CNPS 1B	Occurs in seasonally inundated floodplains on clay soils with riparian scrub habitat. Blooms June-Oct.	Absent. Clay soils required by this species are absent from the project site. Furthermore, this species is not known to occur in Fresno or Madera Counties.
Hoover's Spurge (<i>Euphorbia hooveri</i>)	FE, CNPS 1B	Occurs in vernal pools on volcanic mudflow or clay substrate. Blooms July – Oct.	Absent. Suitable habitat in the form of vernal pools is absent from the project site.
Colusa Grass (<i>Neostapfia colusana</i>)	FT, CE, CNPS 1B	Occurs in large clay bottomed vernal pools of California's Central Valley. Blooms May – Aug.	Absent. Suitable habitat in the form of vernal pools is absent from the project site.
Heartscale (<i>Atriplex cordulata</i>)	CNPS 1B.2	Occurs in alkaline and saline grasslands, scrub, sandy soils. Blooms March – Oct.	Absent. Suitable habitat for this species is absent from the project site. Furthermore, no <i>Atriplex</i> species were observed during the site survey.
Brittlescale (<i>Atriplex depressa</i>)	CNPS 1B.2	Occurs in alkaline and saline grasslands, scrub, clay soils. Blooms May – Oct.	Absent. Suitable habitat for this species is absent from the project site. Furthermore, no <i>Atriplex</i> species were observed during the site survey.
Lesser Saltscale (<i>Atriplex miniscula</i>)	CNPS 1B.1	Occurs in alkaline and saline grasslands, scrub, sandy soils. Blooms May – Oct.	Absent. Suitable habitat for this species is absent from the project site. Furthermore, no <i>Atriplex</i> species were observed during the site survey.
Vernal Pool Smallscale (<i>Atriplex persistens</i>)	CNPS 1B.2	Occurs in alkaline vernal pools. Blooms June – Oct.	Absent. Suitable habitat for this species is absent from the project site. Furthermore, no <i>Atriplex</i> species were observed during the site survey.
Subtle Orache (<i>Atriplex subtilis</i>)	CNPS 1B.2	Occurs in grasslands. Blooms Aug. – Oct.	Absent. Suitable habitat for this species is absent from the project site. Furthermore, no <i>Atriplex</i> species were observed during the site survey.
Lost Hills Crownscale (<i>Atriplex vallicola</i>)	CNPS 1B.2	Occurs in alkaline and saline grasslands, scrub. Blooms April – Aug.	Absent. Suitable habitat for this species is absent from the project site. Furthermore, no <i>Atriplex</i> species were observed during the site survey.
Hispid Salty Bird's Beak (<i>Chloropyron molle ssp. hispidum</i>)	CNPS 1B.1	Occurs in damp alkaline soils, especially in alkaline meadows and alkali sinks with <i>Distichlis spicata</i> . Blooms June – Sept.	Absent. Suitable habitat for this species is absent from the study area.

Federal and State Listed Status Plant Species			
Species	Status	Habitat	*Occurrence on the Project Site
Hoover Cryptantha (<i>Cryptantha hooveri</i>)	CNPS 1A	Possibly extinct, but known historically to occur in grasslands, sandy soil. Blooms April – May.	Absent. Suitable habitat for this species is absent from the study area. Furthermore, no recorded occurrences exist along the SJR corridor for this species.
Recurved Larkspur (<i>Delphinium recurvatum</i>)	CNPS 1B.2	Occurs in alkaline and saline grasslands, scrub. Blooms March – May.	Absent. Suitable habitat for this species is absent from the study area. Furthermore, no recorded occurrences exist along the SJR corridor for this species.
Prostrate Vernal Pool Navarretia (<i>Navarretia prostrata</i>)	CNPS 1B.1	Occurs in mesic and alkaline areas of grasslands or in vernal pools. Blooms April – July.	Absent. Suitable habitat for this species is absent from the study area. Furthermore, no recorded occurrences exist along the SJR corridor for this species.
Sanford's Arrowhead (<i>Sagittaria sanfordii</i>)	CNPS 1B.2	Occurs in freshwater marsh, ditches, canals. Blooms May – Oct.	Absent. Suitable habitat was largely absent for this species. No evidence of this species was observed within the site.
Wright's Trichocoronia (<i>Trichocoronis wrightii</i>)	CNPS 2B.1	Occurs in mud flats of vernal lakes, drying river beds and alkali meadows. Blooms March – Sept.	Unlikely. The sandy soils associated with the SJR bed are marginal to unsuitable for this species. The nearest population of this species is approximately 12.5 miles northwest of the project site in the Merced National Wildlife Refuge. No documented occurrences of this species are known from Fresno or Madera Counties.

Table 1-9. Federal and State-Listed Status Wildlife Species

Federal and State Listed Status Wildlife Species			
Species	Status	Habitat	*Occurrence on the Project Site
Conservancy Fairy Shrimp (<i>Branchinecta conservatio</i>)	FE	Found in vernal pools and ruderal pools of California's Central Valley that do not contain fish.	Absent. Vernal pools required by this species are absent from the project site.
Vernal Pool Fairy Shrimp (<i>Branchinecta lynchi</i>)	FT	Found in vernal pools and ruderal pools of California's Central Valley that do not contain fish.	Absent. Vernal pools required by this species are absent from the project site.
Vernal Pool Tadpole Shrimp (<i>Lepidurus packardii</i>)	FE	Occurs in vernal pools of California containing clear to highly turbid water.	Absent. Vernal pools required by this species are absent from the project site.
Valley Elderberry Longhorn Beetle (<i>Desmocerus californicus dimorphus</i>)	FT	Lives in mature elderberry shrubs of California's Central Valley and Sierra Foothills.	Absent. Elderberry shrubs, the obligate habitat for the VELB, are absent from the project site and surrounding lands.

Federal and State Listed Status Wildlife Species			
Species	Status	Habitat	*Occurrence on the Project Site
Delta Smelt (<i>Hypomesus transpacificus</i>)	FT	This slender-bodied fish is endemic to the San Francisco Bay and Sacramento-San Joaquin Delta upstream through Contra Costa, Sacramento, San Joaquin, Solano, and Yolo Counties.	Absent. The project site is situated well outside of the known distribution of this species.
Steelhead (Central Valley ESU) (<i>Oncorhynchus mykiss irideus</i>)	FT, CSC	Winters in rivers of the Central Valley. Found in cool, clear, fast-flowing permanent streams and rivers	Unlikely. The Central Valley steelhead is currently considered extirpated from the San Joaquin River above its confluence with the Merced River.
Chinook Salmon (Spring-run) (<i>Oncorhynchus tshawytscha</i>)	FT, CSC	Historically spawned in the upper Sacramento and San Joaquin watersheds. This population was largely eliminated from the San Joaquin watershed with the construction of the Friant Dam in 1942, but reintroduction into the San Joaquin River upstream of its confluence with the Merced River was initiated in April 2014. Spawns in gravel beds in riffle areas, typically at the downstream end of pools.	LowLow Potential. This species historically occurred in the San Joaquin River. Restoration efforts are anticipated to regularly return this species to the reach of river passing through the project site. Spawning habitat is absent from the project site.
California Tiger Salamander (<i>Ambystoma californiense</i>)	FT, CT	Found primarily in annual grasslands; requires vernal pools for breeding and rodent burrows for refuge.	Absent. Breeding and aestivation habitat for this species is absent within the project site and surrounding lands.
California Red-Legged Frog (<i>Rana aurora draytonii</i>)	FT	Perennial rivers, creeks and stock ponds of the Coast Range and northern Sierra foothills with overhanging vegetation.	Absent. The project site and surrounding lands do not provide suitable habitat for this species and are outside of its current known range.
Blunt-nosed Leopard Lizard (<i>Gambelia sila</i>)	FE, CE, CFP	Resident of sparsely vegetated alkali and desert scrub habitats in areas of low topographic relief. Seeks cover in small mammal burrows, under shrubs and structures.	Absent. Habitat required by this species is absent from the study area. The agricultural activities surrounding the project site have eliminated all habitats potentially suitable for this species.
Giant Garter Snake (<i>Thamnophis gigas</i>)	FT, CT	Found in freshwater marsh and low gradient streams.	Absent. Suitable aquatic habitat for this species in the form of freshwater marsh is absent from the project area.

Federal and State Listed Status Wildlife Species			
Species	Status	Habitat	*Occurrence on the Project Site
Bald Eagle (<i>Haliaeetus leucocephalus</i>)	FD, CE, CFP	Found throughout most of California near lakes, reservoirs, rivers and coastal wetlands.	Unlikely. Foraging habitat is marginal on the project site due to the absence of deep open waters and the absence or paucity of fish expected on the site due to irregular river flows. Occurrences of this species in this part of the valley are rare.
Golden Eagle (<i>Aquila chrysaetos</i>)	CFP	Forages in grasslands, oak savannah, and open rangelands. Nests on cliffs or large trees.	Present. A golden eagle was observed flying high over the site during the field survey. Foraging habitat is marginal on the site and nesting habitat is absent from the project site.
American Peregrine Falcon (<i>Falco peregrinus anatum</i>)	CFP	Individuals breed on cliffs in the Sierra or in coastal habitats; occurs in many habitats of the state during migration and winter.	Unlikely. The site provides marginal foraging habitat for transients and migrating birds. This site is not within suitable breeding range.
Swainson's Hawk (<i>Buteo swainsoni</i>)	CT	Uncommon resident and migrant in the Central Valley. Forages in grasslands and fields close to riparian areas.	Possible. Swainson's hawks may fly over the project site while foraging on surrounding lands. Nesting habitat is marginal due to the small size of trees. No evidence of raptor nesting in the form of stick nests was observed on site during the field study. A very small amount of foraging habitat occurs within upland areas of the SJR channel on the site.
Mountain Plover (<i>Chardrius montanus</i>)	FPT	Forages in short grasslands and freshly plowed fields of the Central Valley during the winter. Breeds outside California.	Absent. Suitable habitat for this species is absent from the project area.
Nelson's antelope squirrel (<i>Ammospermophilus nelsoni</i>)	CT	Occurs in the southwest portion of the San Joaquin Valley on dry, sparsely vegetated loamy soils.	Absent. Natural habitats suitable for this species are absent from the project site and surrounding lands.
Fresno Kangaroo Rat (<i>Dipodomys nitratoideis exilis</i>)	FE, CE	Occurs in alkali scrub and herbaceous habitats with scattered shrubs in the southwestern San Joaquin Valley.	Absent Unlikely. Natural habitats suitable for this species are absent from the project site and surrounding lands.
San Joaquin Kit Fox (<i>Vulpes macrotis mutica</i>)	FE, CT	Occurs in desert alkali scrub and annual grasslands and may forage in adjacent agricultural habitats.	Possible. Historical observations of this species are absent from the project site and vicinity. The nearest documented occurrences are approximately 8.0 miles to the north and south of the site (CDFW 2015a). The study area provides no suitable breeding habitat for this species and only marginal foraging habitat. Dispersing individuals may cross the site in route to more suitable habitat.

Federal and State Listed Status Wildlife Species			
Species	Status	Habitat	*Occurrence on the Project Site
Chinook Salmon - Central Valley Fall/Late Fall (<i>Oncorhynchus tshawytscha</i>)	CSC	Historically spawned in the Sacramento and San Joaquin drainages in the valley floor and lower foothill reaches. Until recently was absent from the San Joaquin above its confluence with the Merced, but is now being reintroduced to this reach. Spawns in gravel beds in riffle areas, typically at the downstream end of pools. Juvenile fall-run Chinook salmon spend 3 to 6 months rearing in freshwater before migrating to the sea. Extant in a wide array of suitable river habitats during fall migrations. Requires rivers with gravelly substrate to spawn.	Possible. This species historically occurred in the San Joaquin River. Restoration efforts are anticipated to regularly return this species to the reach of river passing through the project site. Spawning habitat is absent from the project site.
Hardhead (<i>Mylopharodon conocephalus</i>)	CSC	Prefer clear, deep pools and runs with sand-gravel-boulder substrates in undisturbed areas of larger low to mid elevation streams.	Absent. This species is absent from valley reaches of the SJR.
Sacramento Splittail (<i>Pogonichthys macrolepidotus</i>)	CSC	Inhabits slow-moving sections of rivers and sloughs in the Central Valley and San Francisco Bay.	Unlikely. Historically found in the SJR as far south as Friant. The current known range of the species in the SJR extends to Salt Slough 27 air miles northwest of the project site.
Western Spadefoot (<i>Spea hammondi</i>)	CSC	Frequents annual grasslands and foothill hardwood woodlands; requires vernal pools or other temporary wetlands for breeding	Absent. Suitable habitat for this species is absent from the study area.
Western Pond Turtle (<i>Emys marmorata</i>)	CSC	Occurs in suitable aquatic habitats such as ponds and rivers throughout California.	Unlikely. The intermittent flows of the SJR on the project site result in only marginal habitat for this species.
Blainville's Horned Lizard (<i>Phrynosoma blainvillii</i>)	CSC	Frequents sandy washes with scattered shrubs, grasslands, scrublands, and oak woodlands of Central California.	Unlikely. Although some habitat for this species occurs in the upland floodplain area of the site; no harvest ants, the main food source for the horned lizard, were observed anywhere on the study site.

Federal and State Listed Status Wildlife Species			
Species	Status	Habitat	*Occurrence on the Project Site
Northern Harrier (<i>Circus cyaneus</i>)	CSC	Frequents meadows, grasslands, open rangelands, freshwater emergent wetlands; uncommon in wooded habitats.	Possible. This species may forage over the site. Nesting habitat is absent.
White-tailed Kite (<i>Elanus leucurus</i>)	CFP	Open grasslands and agricultural areas throughout central California.	Possible. This species may forage over the site. Nesting habitat is marginal due to the small size of trees. No evidence of raptor nesting in the form of stick nests was observed on site during the field study.
California Spotted Owl (<i>Strix occidentalis occidentalis</i>)	CSC	Forest habitats of the western slope of the Sierra Nevada, in the southern Coast Ranges of Monterey County to Santa Barba County, and in the Transverse Ranges from Southern California to Baja California.	Absent. Habitats required by this species are absent from the project site.
Short-eared owl (<i>Asio flammeus</i>)	CSC	Occurs in open grasslands and marshlands of North America, South America, and Eurasia, and on many oceanic islands.	Absent. Habitats required by this species are absent from the project site.
Burrowing Owl (<i>Athene cunicularia</i>)	CSC	Frequents open, dry annual or perennial grasslands, deserts, and scrublands characterized by low growing vegetation. This species is dependent upon burrowing mammals, most notably the California ground squirrel, for nest burrows.	Unlikely. Suitably sized burrows were absent from the project site and surrounding lands. No evidence of this species occupying the site was observed during the field survey. Foraging habitat is limited on the site but somewhat more available on surrounding lands.
Loggerhead Shrike (<i>Lanius ludovicianus</i>)	CSC	Frequents open habitats with sparse shrubs and trees, other suitable perches, bare ground, and low herbaceous cover. Can often be found in cropland.	Present. This species was observed foraging on the project site and surrounding lands during the field survey. Suitable nesting habitat is available on the project site.
Tricolored Blackbird (<i>Agelaius tricolor</i>)	CSC	Breeds near fresh water, primarily emergent wetlands, with tall thickets. Forages in grassland and cropland habitats.	Possible. Marginal breeding habitat is present on the project site in California rose thickets along the east bank of the SJR. Foraging habitat is present throughout the site.

Federal and State Listed Status Wildlife Species			
Species	Status	Habitat	*Occurrence on the Project Site
Yellow-headed Blackbird (<i>Xanthocephalus xanthocephalus</i>)	CSC	Nests in emergent wetland with dense vegetation and deep water. Forages in open areas, including cropland and muddy shores.	Possible. Suitable breeding habitat is absent from the project site. However, potential foraging habitat is present.
American Badger (<i>Taxidea taxus</i>)	CSC	Found in drier open stages of most shrub, forest and herbaceous habitats with friable soils.	Unlikely. Marginal habitat for this species is present onsite. Adjacent agricultural lands provide limited foraging and breeding opportunities.

**Explanation of Occurrence Designations and Status Codes*

Present: Species observed on the sites at time of field surveys or during recent past.

Likely: Species not observed on the site, but it may reasonably be expected to occur there on a regular basis.

Possible: Species not observed on the sites, but it could occur there from time to time.

Unlikely: Species not observed on the sites, and would not be expected to occur there except, perhaps, as a transient.

Absent: Species not observed on the sites, and precluded from occurring there because habitat requirements not met.

Status Codes

FE Federally Endangered

FT Federally Threatened

FPE Federally Endangered (Proposed)

FC Federal Candidate

CE California Endangered

CT California Threatened

CR California Rare

CP California Fully Protected

CSC California Species of Special Concern

CNPS California Native Plant Society Listing

1A Plants Presumed Extinct in California

1B Plants Rare, Threatened, or Endangered in California and elsewhere

2 Plants Rare, Threatened, or Endangered in California, but more common elsewhere

3 Plants about which we need more

Information – a review list

4 Plants of limited distribution – a watchlist

Sources: Appendix B

The proposed Action/Project considered in this evaluation of impacts to biological resources is the development of a surface water conveyance system that will involve the construction of a San Joaquin River (SJR) crossing approximately 452 feet in length. The pipeline will connect the new turnout at the Poso Canal to an existing pump stand on the other side of the SJR. The project will entail installing a 36-inch single wall reinforced concrete pipe or mortar lined and coated steel pipeline from a 36-inch stub on a 48 inch by 48 inch cast in place concrete box turnout in the Poso Canal, across the SJR where it will connect to an existing pump station and conveyance facilities running east along the mid-section line of the section. The connecting pipeline will be approximately 452 feet in length and will be placed across the river using an open cut trench. Construction of the crossing will require temporary disturbance of the channel area by the clearing of riparian shrubs and possibly some trees. Potentially significant project impacts to biological resources and mitigations are discussed below (Appendix B).

Chinook Salmon (*Oncorhynchus tshawytscha*). *Central Valley Spring Run: Federal Listing Status: Threatened; State Listing Status: Threatened; Central Valley Fall Run: Federal Listing Status: None; State Listing Status: Species of Special Concern*

Potential Impacts. As a result of the San Joaquin River Restoration Program (SJRRP) reintroduction efforts, both spring-run and fall-run Chinook salmon may occur in the reach of the SJR when it is flowing through the project site. However, these species would be absent from the project site during project construction, which will occur when this stretch of river is dry. Furthermore, the trenched area of the project site will be restored to pre-project contours. Therefore, the proposed Action/Project will have no effect or impact on spring-run and fall-run Chinook salmon per the provisions of CEQA and NEPA. Mitigation measures are not warranted.

Swainson's Hawk (Buteo swainsoni). Federal Listing Status: None; State Listing Status: Threatened.

Potential Impacts. The Swainson's hawk is designated as a California Threatened species. The loss of agricultural lands (i.e., foraging habitat) to urban development and additional threats such as riverbank protection projects have contributed to its decline. However, in recent years the Central Valley Swainson's hawk population has been increasing (Appendix B).

Swainson's hawks are large, broad-winged, broad-tailed hawks and have a high degree of mate and territorial fidelity. They arrive at their nesting sites in March or April. In the Central Valley, Swainson's hawks typically nest in large trees in or peripherally to riparian systems adjacent to suitable foraging habitats. The young hatch sometime between March and July and do not leave the nest until some 4 to 6 weeks later. Other suitable nest sites include lone trees, groves of trees such as oaks, other trees in agricultural fields, and mature roadside trees. Central Valley Swainson's hawks forage in large, open fields with abundant prey, including grasslands or lightly grazed pastures, alfalfa and other hay crops, and certain grain and row croplands. Their primary food source during the breeding season is voles; however they also prey on other small mammals, birds, and insects during this time.

Potential to occur onsite. Swainson's hawks are known to occur in the project vicinity. Documented nest sites are absent from the project area but occur within the project vicinity, as illustrated in Figure 4, in Appendix B. Trees within the project area are small and contained no stick nests. It is highly unlikely that a Swainson's hawk would nest within the project area. During LOA's November field visit one inactive stick nest was observed in a Fremont cottonwood (*Populus fremontii*) tree approximately 400 feet south of the project area on the east bank of the SJR. However, the species of bird that has built and/or subsequently utilized this nest is unknown. The last use date of this nest is also unknown. This nest was not occupied by any avian species at the time of the field survey and no indications were found of recent raptor use such as prey remains, feathers, or whitewash on the ground beneath. The site offers very limited foraging habitat due to the ruderal nature of the project site and the periodic inundation of the SJR channel that would render the channel unsuitable for foraging. Mitigation measures are not warranted. (Appendix B).

Loss of Habitat for Special Status Animals that may Occur on the Site as Occasional or Regular Foragers but Breed Elsewhere:

Three special status avian species may occasionally forage within the site, but would breed elsewhere. These species include the golden eagle, northern harrier, and yellow-headed blackbird. The site does not provide regionally important foraging habitat for any of these species. Project construction may, at most, temporarily disrupt a small area of available foraging habitat. The project would not result in direct mortality of individuals of these species because these birds are highly mobile and would only potentially use the site for foraging. Therefore, the project would have a "less than significant" impact on these species under CEQA. Mitigation measures are not warranted. (Appendix B).

Project Related Mortality or Disturbance to Nesting Migratory Birds

Potential Impacts. The project site provides nesting habitat for numerous bird species protected under the federal Migratory Bird Treaty Act and related state laws. Special status bird species potentially nesting within the project site are the Swainson's hawk, which is afforded additional protections under the California Endangered Species Act, the white-tailed kite, which is California Fully Protected, and the loggerhead shrike and tricolored blackbird, which are California Species of Special Concern. However, onsite nesting habitat is marginal for the Swainson's hawk, white-tailed kite, and tricolored blackbird. In the event that special status or other migratory birds were to be nesting on or in close proximity of the project site at the time of construction, individuals would be at risk of construction-related injury or mortality. In addition to direct "take" of nesting birds, project activities could disturb birds nesting within and adjacent to work areas such that they would abandon their nests. Project activities that adversely affect the nesting success of raptors and migratory birds or result in the mortality of individual birds constitute a violation of state and federal laws and

represent a potentially significant adverse environmental effect/impact of the project as defined by NEPA and CEQA.

Mitigation Measure Biological - 1: In order to minimize construction disturbance to migratory bird nests, the applicant will implement one or more of the following measure(s) as necessary, prior to project construction:

- **Avoidance.** In order to avoid impacts to all nesting birds from construction activities, these activities will occur outside of the typical avian nesting season, or between September 1 and January 31, as feasible. If the project is constructed entirely outside of the nesting season, there will be no impacts to nesting birds, and no further mitigation is required.
- **Pre-construction surveys.** If construction must occur between February 1 and August 31, a qualified biologist will conduct pre-construction surveys for active migratory bird nests within 30 days of the onset of these activities. The survey will include the project site and surrounding lands within a radius of one half-mile for the Swainson's hawk and white-tailed kite, and a radius of 500 feet for all other avian species.
- **Nest Monitoring.** Should any active nests be discovered in or near proposed construction zones, the biologist will monitor the nest for an eight hour daylight period during the first 24 hours prior to any construction related activities to establish a behavioral baseline. Once work commences, all active nests will be continuously monitored to detect any behavioral changes. If behavioral changes are observed, the work causing that change will cease and CDFW and USFWS will be contacted.
- ~~**Establish buffers.** Should any active nests be discovered, the biologist will determine appropriate construction setback distances based on applicable CDFW guidelines and/or the biology of the affected species. Construction-free buffers will be identified on the ground with flagging, fencing, or by other easily visible means, and will be maintained until the biologist has determined that the young have fledged.~~
- **Establish buffers.** If monitoring of active nests by a qualified wildlife biologist is not feasible, a minimum no-disturbance buffer of 250 feet around active nests of non-listed bird species and a 500-foot no-disturbance buffer around the nests of unlisted raptors will be established. Construction-free buffers will be identified on the ground with flagging, fencing, or by other easily visible means, and will be maintained until the biologist has determined that the young have fledged and are no longer reliant upon the nest or parental care for survival. A minimum no-disturbance buffer of 0.5 miles will be delineated around active Swainson's hawk nests until the breeding season has ended or until a qualified biologist has determined that the birds have fledged and are no longer reliant upon the nest or parental care for survival. If implementation of the 0.5 mile no-disturbance buffer is not feasible, coordination with CDFW and USFWS will occur prior to further construction actions.

Project Impacts to Burrowing Owls from Construction Mortality

Potential Impacts. Burrowing owls and burrows suitable for burrowing owls were not observed on the project site during the field survey. The project site offers only marginal foraging habitat for this species, and burrows of suitable dimensions for the burrowing owl were absent at the time of the field survey. Agricultural lands surrounding the site offer potentially suitable habitat for this species. The majority of project impacts will be temporary in nature. The small area of permanent impacts associated with Poso Canal turnout will be in ruderal roadside/canal habitats that would be marginal, at best, for the burrowing owl. Therefore, loss of habitat for the burrowing owl would constitute a less than significant impact of the project as defined by CEQA and not likely to adversely affect as defined by NEPA.

Should California ground squirrels colonize the site before construction, it is remotely possible that one or more burrowing owls could move onto or immediately adjacent to the site, in which case they would be at

risk of construction-related injury or mortality. These small raptors are protected under the Federal Migratory Bird Treaty Act and California Fish and Game Code. Mortality of individual owls would be a violation of state and federal law, and would constitute a significant impact of the project under CEQA and an adverse effect under NEPA.

Mitigation Measure Biological - 2: Implementation of the following measures will reduce potential project impacts to the burrowing owl to a “less than significant level” under CEQA and a “not likely to adversely affect” level under NEPA.

- **Take Avoidance Surveys.** A “take avoidance survey” as described in the Staff Report on Burrowing Owl Mitigation (CDFG 2012) will be conducted by a qualified biologist for burrowing owls within 30 days of the onset of project activities involving ground disturbance or heavy equipment use. The survey area will include all suitable habitat on and within 500 feet of project impact areas, where accessible.
- **Avoidance of Active Nests.** If pre-construction surveys and subsequent project activities are undertaken during the breeding season (February 1-August 31) and active nest burrows are located within or near project impact areas, a 250-foot construction setback will be established around active owl nests, or alternate avoidance measures implemented in consultation with CDFW and coordination with USFWS. The buffer areas will be enclosed with temporary fencing to prevent construction equipment and workers from entering the setback area. Buffers will remain in place for the duration of the breeding season, unless otherwise arranged with CDFW. After the breeding season (i.e. once all young have left the nest), passive relocation of any remaining owls may take place as described below.
- **Passive Relocation of Resident Owls.** During the non-breeding season (September 1-January 31), resident owls occupying burrows in project impact areas may be passively relocated to alternative habitat in accordance with a relocation plan prepared by a qualified biologist and approved by CDFW and coordination with USFWS. Passive relocation may include one or more of the following elements: 1) establishing a minimum 50 foot buffer around all active burrowing owl burrows, 2) removing all suitable burrows outside the 50 foot buffer and up to 160 feet outside of the impact areas as necessary, 3) installing one-way doors on all potential owl burrows within the 50 foot buffer, 4) leaving one-way doors in place for 48 hours to ensure owls have vacated the burrows, and 5) removing the doors and excavating the remaining burrows within the 50 foot buffer.

Project Impacts to San Joaquin Kit Foxes from Construction Mortality

Potential Impacts. The Project site offers only marginal foraging habitat for the San Joaquin kit fox and provides unsuitable denning habitat. No burrows of suitable dimensions for the San Joaquin kit fox were observed on the project site at the time of the field survey. Furthermore documented kit fox occurrences are absent from the project sight and surrounding lands. However, San Joaquin kit fox may utilize the SJR channel as a dispersal corridor from time to time.

If a kit fox were passing through the project site at the time of construction, then they would be at risk of construction-related mortality. As discussed, this species is listed as both federally and state endangered. In the absence of incidental take authorization by the United States Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW), construction mortality of the San Joaquin kit fox would constitute a violation of the state and federal Endangered Species Acts. Construction mortality of the San Joaquin kit fox would also constitute a significant impact of the project as defined by CEQA and an adverse effect of the project as defined by NEPA.

Mitigation Measure Biological - 3. Prior to construction, the following measures adapted from the U.S. Fish and Wildlife Service 2011 Standardized Recommendations for Protection of the San Joaquin Kit Fox Prior to or During Ground Disturbance (Appendix E of Appendix B) will be implemented:

- **Pre-construction Surveys.** Pre-construction surveys shall be conducted no less than 14 days and no more than 30 days prior to the beginning of ground disturbance, construction activities, and/or any project activity likely to impact the San Joaquin kit fox. These surveys will be conducted in accordance with the USFWS Standardized Recommendations. The primary objective is to identify kit fox habitat features (e.g. potential dens and refugia) on the proposed Action/Project and evaluate their use by kit foxes through use of remote monitoring techniques such as motion-triggered cameras and tracking medium. If an active kit fox den is detected within or immediately adjacent to the area of work, the USFWS and CDFW shall be contacted immediately.
- **Avoidance.** Should an active kit fox den be detected within or immediately adjacent to the area of work, a minimum 50-foot disturbance-free buffer will be established around the den in consultation with the USFWS and CDFW, to be maintained until a qualified biologist has determined that the den is no longer occupied. Known kit fox dens may not be destroyed until they have been vacant for a period of at least three days, as demonstrated by use of motion-triggered cameras or tracking medium, and then only after obtaining take authorization from the USFWS.
- **Minimization.** Construction activities ~~should~~ will be carried out in a manner that minimizes disturbance to kit foxes. Minimization measures include, but are not limited to: restriction of project-related vehicle traffic to established roads, construction areas, and other designated areas; inspection and covering of structures (e.g., pipes), as well as installation of escape structures, to prevent the inadvertent entrapment of kit foxes; restriction of rodenticide and herbicide use; and proper disposal of food items and trash (Appendix E of Appendix B). In accordance with the USFWS Standard Recommendations, minimization measures include, but are not limited to:
 - Restriction of on-site Proposed Action/Project-related vehicle traffic to established roads, construction areas, and other designated areas, with a speed limit no greater than 15 mph; after dark, speed will be limited to 10 mph. Off-road traffic outside of designated project areas will be prohibited. Work at night will not be allowed.
 - All construction pipes, culverts, or similar structures with a diameter of 4 inches or greater that are stored at a construction site for one or more overnight periods shall be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a kit fox is discovered inside a pipe, that section of pipe shall not be moved until the Service has been consulted. If necessary, and under the direct supervision of a biologist, the pipe may be moved only once to remove it from the path of construction activity, until the fox has escaped; all excavated, steep-walled holes or trenches more than 2 feet deep will be covered with plywood or similar materials at the end of each work day. If the trenches cannot be closed, one or more escape ramps constructed of earthen-fill or wooden planks will be installed. Before such holes or trenches are filled, they will be inspected for trapped animals; holes or trenches more than 8 feet deep will be covered or fenced at the end of each day.
 - Restriction of rodenticide and herbicide use, if rodent control must be conducted, zinc phosphide shall be used because of a proven lower risk to kit fox; and proper disposal of food items and trash.
- **Employee Education Program.** Prior to the start of construction, the ~~applicant~~ District will retain a qualified biologist to conduct a tailgate meeting to train all construction staff that will be involved with the project on the San Joaquin kit fox. This training will include a description of the kit fox and its habitat needs; a report of the occurrence of kit fox in the proposed Action/Project area; an explanation of the status of the species and its protection under the endangered species act; and a list

of the measures being taken to reduce impacts to the species during project construction and implementation. The training will include a hand out with all of the training information included in it. The project manager will use this handout to train any additional construction staff, that were not in attendance at the first meeting, prior to starting work on the proposed Action/Project.

- All food-related trash items such as wrappers, cans, bottles, and food scraps will be disposed of in securely closed containers and removed at least once a week from the Project Area.
- No pets will be permitted in the Project Area to prevent harassment, or, mortality of SJKF, or destruction of dens.
- Upon completion of the Project, all areas subject to temporary ground disturbances, including staging areas temporary roads, and borrow sites will be recontoured, if necessary, and revegetated to promote restoration of the area to pre-project conditions.
- SJKF sightings will be reported to CNDDB.
- No firearms will be allowed on the Project site.
- Mortality Reporting. ~~The Sacramento Field Office of the USFWS and the Fresno Field Office of CDFW will be notified in writing within three working days in case of the accidental death or injury to a San Joaquin kit fox during project-related activities. Notification must include the date, time, location of the incident or of the finding of a dead or injured animal, and any other pertinent information.~~

Implementation of these measures will reduce potentially significant project impacts to the San Joaquin kit fox to a “less than significant” level under CEQA and a “not likely to adversely affect” level under ESA, and ensure compliance with state and federal laws protecting this species.

Fresno Kangaroo Rat

Kangaroo Rat trappings were conducted May 9, 2016 through May 13, 2016. A total of 130 common species, Heermann’s Kangaroo Rats were trapped over the five days of trapping. 10 Deer Mice were also trapped. No Fresno Kangaroo Rats were trapped over the five days of trapping. Reclamation is completing informal consultation with USFWS on Kangaroo Rat and SJKF.

Additionally, according to the USFWS 5-Year Review of the FKR, “The Fresno kangaroo rat habitat is on elevated grassy patches on alkali plains or in grassy terrain with scattered alkali patches. Both habitat types are characterized by easily dug friable soils in which the Fresno kangaroo rat digs burrow complexes (Culbertson 1946)”. According to the *Recovery Plan for Upland Species of the San Joaquin Valley, California*, “Fresno kangaroo rats occupy sands and saline sandy soils in chenopod scrub and annual grassland communities on the Valley floor. Recently they have been found only in alkali sink communities between 61 to 91 meters (200 to 300 feet) in elevation. Topography is often nearly level, consisting of bare alkaline clay-based soils subject to seasonal inundation and are broken by slightly rising mounds of more crumbly soils, which often accumulate around shrubs or grasses. Associated plant species include seepweed, iodine bush, saltbushes, peppergrass, filaree, wild oats, and mouse-tail fescue (Culbertson 1946, Hoffmann 1974, Hoffman and Chesemore 1982)”. The project site contained no alkali plains, grassland, or chenopod scrub communities. Nor did it contain any of the associated plant species with the exception of filaree (i.e. broadleaf filaree and red-stemmed filaree). The habitat in which the photographed burrows are located is “river floodplain” characterized by deep unconsolidated sandy soils, non-native grasses and forbs, and scattered riparian shrubs within the San Joaquin River channel levees. This habitat is not only inconsistent with the habitat requirements of the FKR but experiences regular human disturbance in the form of off-road vehicle travel and periodic scouring from San Joaquin River flood waters. Surrounding agricultural lands provide unsuitable habitat for

FKR for miles in all directions.

The project site is well outside the historic range of the FKR (see table below from the *Recovery Plan for Upland Species of the San Joaquin Valley, California*) and 25 miles north of the last known extant population of FKR at the Alkali Sink Ecological Reserve south of Hwy 180 in Fresno County.

IV-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?

Less than Significant Impact with Mitigation Incorporation. The riparian habitat of the site is considered a natural community of special concern. The project will avoid impacts to all riparian trees, if feasible; however, there is some potential for effects/impacts to riparian habitat to occur.

Mitigation Measure Biological - 4. The following measures will be implemented to mitigate any potential impacts to riparian and other sensitive habitats during construction of the project.

- **Tree Survey.** Prior to project construction a qualified biologist will survey all trees with a diameter at breast height (DBH) greater than 4 inches within the project impact area. During the survey the biologist will note the location, DBH, and species of each tree. Upon project completion a qualified biologist will survey the site to determine if any surveyed trees were removed.
- **Revegetation of Disturbed Areas.** After construction, all disturbed areas will be restored to approximate pre-project conditions. The herbaceous vegetation within the river bottom and quick growing riparian shrub species (i.e. California rose and sandbar willow) that dominate the river banks are anticipated to revegetate naturally from adjacent root masses.
- **The applicant-District** will provide compensation for removal of riparian trees with a DBH of more than 4 inches. Replacement planting will be implemented at a ratio of 3:1 for trees with a DBH between 4-24 inches, and at a ratio of 10:1 for trees with a DBH greater than 24 inches. Species chosen for the plant palette will include native riparian trees such as valley oaks, Oregon ash and Fremont's cottonwoods. These trees will be planted as container plants and/or cuttings. If possible, cuttings will be gathered from lands fronting the San Joaquin River. All planting material will be installed in the late fall or early winter. All plantings will be monitored annually for a minimum of five years. A revegetation plan will be completed for the project which will detail the maintenance, monitoring, performance criteria and success rate for trees planted within the project site.

Implementation of these measures will reduce potential project impacts to riparian and sensitive habitats to a less than significant level under CEQA and a "not likely to adversely affect" level under NEPA.

IV-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?

Less Than Significant Impact with Mitigation Incorporation. Trenching required by the proposed Action/Project could result in increased sediment loads entering the SJR. Project elements such as recontouring after construction, removing spoils, and reseeding with native species approved by a biologist will reduce impacts to downstream water quality. However, project activities still pose a potential effect/impact to downstream water quality. The riparian communities present on the proposed Action/Project site will be protected by Mitigation Measure 4, as detailed in Impact IV-b, as well as the following additional mitigation measure:

Mitigation Measure Biological - 5.

- **Preparation and implementation of erosion control plan:** Prior to the onset of construction, an erosion control plan will be prepared by a qualified engineer consistent with the requirements of a General Construction Permit (an NPDES permit issued by the Regional Water Quality Control Board for Projects in which one or more acres of land are graded). Typically, specified erosion control measures must be implemented prior to the onset of the rainy season. The site must then be monitored periodically throughout the rainy season to ensure that the erosion control measures are successfully preventing onsite erosion and the concomitant deposition of sediment into jurisdictional waters. Elements of this plan would address both the potential for soil erosion and non-point source pollution. At a minimum, elements of an erosion control plan typically include the following:
 1. Protection of exposed graded slopes and/or temporary sidecast soils from sheet, rill and gully erosion. Such protection could be in the form of erosion control fabric or sheeting, straw wattles, post-construction hydromulch containing the seed of native soil-binding plants, or straw mechanically embedded in exposed soils.
 2. Use of ~~b~~Best management practices (BMPs) to control soil erosion and non-point source pollution.
- **Time construction to occur during the dry season:** Where possible, project construction will be confined to the dry season, when the chance for significant rainfall and stormwater runoff is very low. Construction during the spring, summer, and fall will not eliminate the need to implement erosion control measures described in this mitigation measure, but will ensure that the potential for soil erosion has been minimized to the maximum extent feasible.

Compliance with these measures would reduce project impacts to water quality in downstream waters to a less than significant level under CEQA, and a “not likely to adversely affect” level under NEPA.

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

Less Than Significant Impact. The Project site includes a short segment of the San Joaquin River corridor, which is a regionally important movement corridor for fish and wildlife species. Construction activities are expected to be brief and occur only during daylight hours. Nearly all terrestrial wildlife species, aside from avian species, engage in primarily nocturnal movements, and would, therefore, be unlikely to experience much disruption to their night time movements through the river corridor. At most, construction activities may result in only a brief disruption of native wildlife movements in this small section of the corridor. There would be no permanent impacts to the SJR and wildlife would be expected to resume normal movement patterns when construction is complete. Since construction will occur when the river is dry, impacts to fish movements will be absent (Appendix B). Therefore, the project is “not likely to adversely affect” fish or wildlife movement corridors per the provisions of NEPA, and will have a less than significant impact on these corridors under CEQA.

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

No Impact. There are no tree preservation ordinances that would be in conflict with the proposed Action/Project. Trees in riparian corridors would be protected as detailed in **Mitigation Measure 4**. No additional mitigation is required.

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

No Impact. The proposed Action/Project is designed to be consistent with policies of the County of Madera General Plan (1995) and County of Fresno General Plan (2000). This project will not be in conflict with any local policies or ordinances protecting biological resources. Therefore, there will be no impact.

1.5 Cultural Resources

Table 1-10. Cultural Resources

Cultural Resources				
Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☒	☐	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

1.5.1 Regulatory Setting

1.5.1.1 Federal

Section 106 of the National Historic Preservation Act: Section 106 of the NHPA as amended (Section 106, 16 USC 470f) requires that impacts on significant cultural resources, hereafter called historic properties, be taken into consideration in any federal undertaking. “Historic property means any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places (National Register) maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties.

The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization that meet the National Register criteria” [36 CFR 800.16(l)]. The federal significance of an archaeological site or an architectural structure is defined in the NHPA implementing regulations (36 CFR 60.4).

As prehistoric archaeological sites, artifacts, and human remains are considered important components of contemporary American Indian heritage, two federal statutes apply. The American Indian Religious Freedom Act of 1978 (AIRFA) (42 USC Sections 1996–1996a) requires that locations identified as central to American Indian religious practice be protected. The Native American Graves Protection and Repatriation Act of 1990 (NAGPRA) (25 USC Sections 3001–3013) requires that prehistoric human remains and burial-related artifacts, as well as sacred objects of cultural patrimony that are recovered during ground disturbances be provided to those contemporary Native Americans who are recognized as lineal descendants or as a tribal group that has the closest cultural affiliation with such remains or artifacts.

Federal Regulations Relating to Paleontological Resources: Federal protection for scientifically significant paleontological resources applies to projects if any construction or other related project impacts occur on federally owned or managed lands, involve the crossing of state lines, or are federally funded. The following federal protections apply to paleontological resources:

- **American Antiquities Act of 1906** (16 USC 431-433). Establishes a penalty for disturbing or excavating any historic or prehistoric ruin or monument or object of antiquity on federal lands as a maximum fine of \$500 or 90 days in jail.

- **The National Environmental Policy Act of 1969**, as amended (Pub. L. 91-190, 42 USC 4321-4347, January 1, 1970, as amended by Pub. L. 94-52, July 3, 1975, Pub. L. 94-83, August 9, 1975, and Pub. L. 97-258 §4(b), Sept. 13, 1982). Recognizes the continuing responsibility of the Federal Government to “preserve important historic, cultural, and natural aspects of our national heritage....” (Sec. 101 [42 USC § 4321]) (#382).
- **National Historic Preservation Act of 1966** (Pub. L. 89-665; 80 Stat. 915, 16 USC 470 et seq.). Provides for the survey, recovery, and preservation of significant paleontological data when such data may be destroyed or lost due to a federal, federally licensed, or federally funded project.
- **Federal Land Management and Policy Act of 1976** (43 USC 1712[c], 1732[b]); sec. 2, Federal Land Management and Policy Act of 1962 [30 USC 611]; Subpart 3631.0 et seq.), Federal Register Vol. 47, No. 159, 1982. Defines significant fossils as: unique, rare or particularly well-preserved; an unusual assemblage of common fossils; being of high scientific interest; or providing important new data concerning (1) evolutionary trends, (2) development of biological communities, (3) interaction between or among organisms, (4) unusual or spectacular circumstances in the history of life, or (5) anatomical structure.
- **American Indian Religious Freedom Act of 1978**: As prehistoric archaeological sites, artifacts, and human remains are considered important components of contemporary American Indian heritage, two federal statutes apply. The American Indian Religious Freedom Act of 1978 (AIRFA) (42 USC Sections 1996–1996a) requires that locations identified as central to American Indian religious practice be protected.

1.5.1.2 State

California Register of Historical Resources: Created in 1992 and implemented in 1998, the California Register of Historical Resources (CRHR) is “an authoritative guide in California to be used by state and local agencies, private groups, and citizens to identify the state’s historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change.” Certain properties, including those listed in or formally determined eligible for listing in the National Register of Historic Places (NRHP) and California Historical Landmarks numbered 770 and higher, are automatically included in the CRHR. Other properties recognized under the California Points of Historical Interest program, identified as significant in historic resources surveys or designated by local landmarks programs, may be nominated for inclusion in the CRHR.

California Historical Landmarks: California Historical Landmarks (CHLs) are buildings, structures, sites, or places that have anthropological, cultural, military, political, architectural, economic, scientific or technical, religious, experimental, or other value and that have been determined to have statewide historical significance by meeting at least one of the criteria listed below. The resource also must be approved for designation by the County Board of Supervisors (or the city or town council in whose jurisdiction it is located); be recommended by the State Historical Resources Commission; and be officially designated by the Director of California State Parks. The specific standards now in use were first applied in the designation of CHL #770. CHLs #770 and above are automatically listed in the CRHR.

California Points of Historical Interest: California points of historical interest are sites, buildings, features, or events that are of local (city or county) significance and have anthropological, cultural, military, political, architectural, economic, scientific or technical, religious, experimental, or other value. Points of historical interest designated after December 1997 and recommended by the State Historical Resources Commission are also listed in the CRHR. No historic resource may be designated as both a landmark and a point. If a point is later granted status as a landmark, the point designation will be retired. In practice, the point designation program is most often used in localities that do not have a locally enacted cultural heritage or preservation ordinance.

American Indian Human Remains: The disposition of American Indian burial sites is governed by Section 7050.5 of the California Health and Safety Code, and Sections 5097.94 and 5097.98 of the Public Resources Code, and falls within the jurisdiction of the NAHC. Section 7052 of the Health and Safety Code establishes a felony penalty for mutilating, disinterring, or otherwise disturbing human remains, except by relatives.

Penal Code Section 622.5 provides misdemeanor penalties for injuring or destroying objects of historical or archaeological interest located on public or private lands, but specifically excludes the landowner. PRC Section 5097.5 defines as a misdemeanor the unauthorized disturbance or removal of archaeological or historical resources located on public lands.

The California Health and Safety Code requires archaeological sites known to contain human remains to be treated in accordance with the provisions of State Health and Safety Code Section 7050.5. The protection of human remains is also ensured by California Public Resources Code, Sections 5097.94, 5097.98, and 5097.99. If human remains were exposed during construction, all ground-disturbing activities would cease until the County coroner had made the necessary findings as to origin and disposition. Construction must halt in the area of the discovery of human remains, the project proponent must assure that the area is protected, and consultation and treatment shall occur as prescribed by law.

California Senate Bill 18: Requires consultation with California American Indian tribes prior to adoption of a general plan, specific plan, amendment to such plans, or designation of open space land. SB 18 places responsibility of initiating consultation on local governments for tribal input early in the planning process to preserve or mitigate impacts to Native American cultural places. SB 18 incorporates increased protection of California Native American cultural places into land use planning for cities, counties, and agencies.

Native American Heritage Commission: Section 5097.91 of the California PRC established the NAHC, whose duties include the inventory of places of religious or social significance to American Indians and the identification of known graves and cemeteries of American Indians on private lands. Section 5097.98 of the PRC specifies a protocol to be followed when the NAHC receives notification of a discovery of American Indian human remains from a county coroner.

California Public Records Act: Sections 6254(r) and 6254.10 of the California Public Records Act were enacted to protect archaeological sites from unauthorized excavation, looting, or vandalism. Section 6254(r) explicitly authorizes public agencies to withhold information from the public relating to “Native American graves, cemeteries, and sacred places maintained by the Native American Heritage Commission.” Section 6254.10 specifically exempts from disclosure requests for “records that relate to archaeological site information and reports, maintained by, or in the possession of the Department of Parks and Recreation, the State Historical Resources Commission, the State Lands Commission, the NAHC, another state agency, or a local agency, including the records that the agency obtains through a consultation process between a Native American tribe and a state or local agency.”

Health and Safety Code, Sections 7050 and 7052: Health and Safety Code, Section 7050.5, declares that, in the event of the discovery of human remains outside of a dedicated cemetery, all ground disturbances must cease and the county coroner must be notified. Section 7052 establishes a felony penalty for mutilating, disinterring, or otherwise disturbing human remains, except by relatives.

California Penal Code, Section 622.5: The California Penal Code, Section 622.5, provides misdemeanor penalties for injuring or destroying objects of historic or archaeological interest located on public or private lands, but specifically excludes the landowner.

Public Resources Code, Section 5097.5: Public Resources Code, Section 5097.5, defines as a misdemeanor the unauthorized disturbance or removal of archaeological, historic, or paleontological resources located on public lands.

1.5.1.3 Local

Madera County 1995 General Plan: The following goal and policies contained within the Madera County General Plan Recreational and Cultural Resources Section and pertain to cultural resources:

- Goal 4.D: To identify, protect, and enhance Madera County's important historical, archaeological, paleontological, and cultural sites and their contributing environment.
- Policy 4.D.1: The County shall solicit the views of the local Native American community in cases where development may result in disturbance to sites containing evidence of Native American activity and/or to sites of cultural importance. Policy 4.D.4: The County shall, within its power, maintain confidentiality regarding the locations of archaeological sites in order to preserve and protect these resources from vandalism and the unauthorized removal of artifacts. If significant archaeological and cultural resources are open to the public, the County shall control public access to prevent damage or vandalism.

2000 Fresno County General Plan: The 2000 Fresno County General Plan contains policies aimed at preserving and protecting cultural resources. The following policies are relevant to the protection of cultural resources within the Project site and surrounding area:

- Goal OS-J: To identify, protect, and enhance Fresno County's important historical, archeological, paleontological, geological, and cultural sites and their contributing environment, and promote and encourage preservation, restoration, and rehabilitation of Fresno County's historically significant resources in order to promote historical awareness, community identify, and to recognize the County's valued assets that have contributed to past County events, trends, styles of architecture, and economy.
- Policy OS-J.1: Preservation of Historic Resources. The County shall encourage preservation of any sites and/or buildings identified as having historical significance pursuant to the list maintained by the Fresno County Historic Landmarks and Records Advisory Commission.
- Policy OS-J.2: Historic Resources Consideration. The County shall consider historic resources during preparation or evaluation of plans and discretionary development projects.
- Policy OS-J.14: Sites Protection and Mitigation. The County shall require that discretionary development projects, as part of any required CEQA review, identify and protect important historical, archeological, paleontological, and cultural sites and their contributing environment from damage, destruction, and abuse to the maximum extent feasible. Project-level mitigation shall include accurate site surveys, consideration of project alternatives to preserve archeological and historic resources, and provision for resource recovery and preservation when displacement is unavoidable.

1.5.1.4 Impact Assessment

V-a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?

Less Than Significant With Mitigation Incorporation. A cultural resource investigation was conducted by Applied Earthworks, Inc. on behalf of Provost and Pritchard Consulting Group. The assessment consisted of three parts. A cultural resource records search was requested from the Southern San Joaquin Valley Historical

Resources Information Center at California State University, Bakersfield on October 29, 2015. Second, pedestrian surveys were completed by qualified archeologists on November 9th and October 16th of 2015 and 2014, respectively. Lastly, the Project area was analyzed to identify the potential for buried cultural resources in a buried site assessment. The records search included an examination of the National Register of Historic Places, the California Register of Historical Resources, and California Points of Historical Interest, California Inventory of Historic Resources, California State Historic Landmarks Registry, and the HRIC files of pertinent historical and archaeological data. The records search showed one previous cultural resource overview study in the Project area and five previous studies within a 0.5 mile radius of the Project area. One cultural resource had been previously documented within the Harman Crossing footprint – the Riverside Canal (CA-MER-431H/ P-24-001798) and one cultural resource was found within 0.5 mile – the Sana Rita Bridge. The letter stated that there is one previously recorded historical resource within the Project area – the Poso Canal. The canal has been previously evaluated and recommended ineligible for the NRHP and the CRHR. Therefore, no further management of this resource is recommended or necessary.

While the buried site assessment found little potential for sub-surface resources, there is still potential for previously unknown resources to be present. In order to avoid potential impacts to unknown resources, the following mitigation measures shall be implemented to ensure impacts are less than significant:

Mitigation Measure Cultural – 1. In the event that previously undetected cultural materials (i.e. prehistoric sites, historic features, isolated artifacts, and features such as concentrations of shell or glass) are discovered during construction, work in the immediate vicinity should immediately cease and be redirected to another area until a qualified archaeologist that meets the Secretary of the Interior's Professional Qualifications Standards in prehistoric or historic archaeology inspects and assesses the find. The District shall consider further recommendations as presented by the professional and implement additional measures as necessary to protect and preserve the particular resource. Such measures may include avoidance, preservation in place, excavation, documentation, curation, data recovery, or other appropriate measures. In addition, if any such historic features, isolated artifacts, or features such as concentrations of shell or glass are found on or in the sovereign land of California under the jurisdiction of the California State Lands Commission, the Commission shall be notified and allowed to inspect and assess the find as would be entitled to that resource.

V-b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?

Less Than Significant With Mitigation Incorporation. Any impacts to historic/cultural resources have been discussed in Impact Assessment V-a. **Mitigation Measure Cultural-1** applies is sufficient to mitigate potential archaeological impacts.

V-c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less Than Significant With Mitigation Incorporation. There are not any known paleontological resources located within the proposed Action/Project site. Although the buried resources assessment identified very low risk, there is the potential for sub-surface resources to be present. In order to avoid potential impacts to unknown resources, the following mitigation measures shall be implemented to ensure impacts are less than significant:

Mitigation Measure Cultural – 2. If during the course of project implementation, paleontological resources (i.e., fossils) are discovered, work shall be halted immediately within 50 feet of the discovery, Fresno County and Madera County shall be immediately notified, and a qualified paleontologist shall be retained to determine the significance of the discovery. The District shall consider further recommendations as presented by the professional and implement additional measures as necessary to protect and preserve the particular resource. Such measures may include avoidance, preservation in place, excavation, documentation, curation, data recovery, or other appropriate measures. In addition, if any such paleontological resources (i.e. fossils) are found on or in the sovereign land of California under the jurisdiction of the California State Lands

Commission, the Commission shall be notified and allowed to inspect and assess the find as would be entitled to that resource.

V-d) Disturb any human remains, including those interred outside of formal cemeteries?

Less Than Significant With Mitigation Incorporation. There are not any known formal cemeteries or other places of human internment are known to exist on the proposed Action/Project sites. However, there still remains the potential for previously unknown sub-surface resources to be present. In order to avoid potential impacts to unknown remains, the following mitigation measures shall be implemented to ensure impacts are less than significant:

Mitigation Measure Cultural – 3. If human remains are uncovered, or in any other case where human remains are discovered, the Fresno or Madera County Coroner, as appropriate, is to be notified to arrange their proper treatment and disposition. If the remains are identified – on the basis of archaeological context, age, cultural associations, or biological traits – as those of a Native American, California Health and Safety Code 7050.5 and Public Resource Code 5097.98 require that the coroner notify the NAHC within 24 hour of discovery. The NAHC will then notify the most likely descendant, who may recommend treatment of the remains. In addition, if any such human remains are found on or in the sovereign land of California under the jurisdiction of the California State Lands Commission, the Commission shall be notified and allowed to inspect and assess the find as would be entitled to that resource.

1.6 Geology and Soils

Table 1-11. Geology and Soils

Geology and Soils				
Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a) Expose people or structures to 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 most recently adopted Uniform Building Code creating substantial risks to life or property?	☐	☐	☒	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒

1.6.1 Regulatory Setting

1.6.1.1 Federal

Historic Sites Act of 1935: This Act became law on August 21, 1935 (49 Stat. 666; 16 U.S.C. 461-467) and has been amended eight times. This Act establishes as a national policy to preserve for public use historic sites, buildings and objects, including geologic formations.

National Earthquake Hazards Reduction Program: The National Earthquake Hazards Reduction Program (NEHRP), which was first authorized by Congress in 1977, coordinates the earthquake-related activities of the Federal Government. The goal of NEHRP is to mitigate earthquake losses in the United States through basic and directed research and implementation activities in the fields of earthquake science and engineering. Under NEHRP, FEMA is responsible for developing effective earthquake risk reduction tools and promoting

their implementation, as well as supporting the development of disaster-resistant building codes and standards. FEMA's NEHRP activities are led by the FEMA Headquarters (HQ), Federal Insurance and Mitigation Administration, Risk Reduction Division, Building Science Branch, in strong partnership with other FEMA HQ Directorates, and in coordination with the FEMA Regions, the States, the earthquake consortia, and other public and private partners.

1.6.1.2 State

There are several State regulations and guidance documents that have been developed and continue to be improved upon or revised as the knowledge base for geologic conditions, hazards, and engineering practices broadens. The following is a list of current codes and guidelines that should be used for planning and design of projects within the Project area, as applicable.

California Alquist-Priolo Earthquake Fault Zoning Act: The Alquist-Priolo Earthquake Fault Zoning Act (originally enacted in 1972 and renamed in 1994) is intended to reduce the risk to life and property from surface fault rupture during earthquakes. The statute prohibits the location of most types of structures intended for human occupancy across the traces of active faults and regulates construction in the corridors along active faults.

California Seismic Hazards Mapping Act: The Seismic Hazards Mapping Act is intended to reduce damage resulting from earthquakes. While the Alquist-Priolo Earthquake Fault Zoning Act addresses surface fault rupture, the Seismic Hazards Mapping Act addresses other earthquake-related hazards, including ground shaking, liquefaction, and seismically induced landslides. The state is charged with identifying and mapping areas at risk of strong ground shaking, liquefaction, landslides, and other hazards, and cities and counties are required to regulate development within mapped Seismic Hazard Zones.

Uniform Building Code: The California Code of Regulations (CCR) Title 24 is assigned to the California Building Standards Commission, which, by law, is responsible for coordinating all building standards. The California Building Code incorporates by reference the Uniform Building Code with necessary California amendments. The Uniform Building Code is a widely adopted model building code in the United States published by the International Conference of Building Officials. About one-third of the text within the California Building Code has been tailored for California earthquake conditions.

1.6.2 Impact Assessment

VI-a) Would the Project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

VI-a-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.

VI-a-ii) Strong seismic ground shaking?

VI-a-iii) Seismic-related ground failure, including liquefaction?

VI-a-iv) Landslides?

No Impact. The proposed Action/Project does not involve the construction of any inhabitable structures that may result in the exposure of people or structures to potential substantial adverse effects, including the risk of loss, injury, or death as a result of the rupture of an earthquake fault, strong seismic ground shaking, or seismic-related ground failure. Therefore, no impacts would occur.

VI-b) Result in substantial soil erosion or the loss of topsoil?

Less Than Significant Impact. Grading activities associated with the proposed Action/Project involve earthmoving, excavation, stockpiling, and grading. These activities could expose soils to erosion processes. The extent of erosion would vary depending on slope steepness/stability, vegetation/cover, concentration of runoff, and weather conditions.

The proposed Action/Project site is relatively flat which would reduce the potential for erosion and loss of topsoil to a certain degree. The construction of the proposed turn out and 452 LF pipeline will require grading and excavation, approximately two acres of ground will be disturbed. To further prevent water and wind erosion during the construction period, a Storm Water Pollution Prevention Plan (SWPPP) would be prepared for the proposed Action/Project in accordance with the State Water Resources Control Board Construction General Permit Order 2009-0009-DWQ. As part of the SWPPP, the applicant would be required to provide erosion control measures to protect the topsoil. Any stockpiled soils would be watered and/or covered to prevent loss due to wind erosion as part of the SWPPP during construction. As a result of these efforts, loss of topsoil and substantial soil erosion during the construction period are not anticipated. Therefore, implementation of the required SWPPP would ensure that impacts are less than significant.

VI-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?

Less than Significant Impact. The proposed Action/Project would not be located on a geologic unit or soil that is unstable or that would become unstable as a result of the proposed Action/Project and thus would not result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse.

- **Landslides** – According to the California Department of Conservation Landslide Map Database, the proposed Action/Project is not located in a landslide zone¹¹. Therefore, there would be no impact.
- **Lateral Spreading** – The proposed Action/Project is located in a rural area where lateral spreading has not historically occurred or has the potential to occur. Therefore, there would be no impact.
- **Subsidence** – The proposed Action/Project would not contribute to subsidence. Additionally, the proposed Action/Project would help to combat subsidence in the Red Top Area by providing up to an average of an approximately 10,000 acre feet of surface water per year to the Area. This would reduce deep aquifer pumping and reduce subsidence. Therefore, any impacts would be less than significant.
- **Liquefaction** – According to the California Department of Conservation Regulatory Map Database, the proposed Action/Project is not located in a known liquefaction area¹². Therefore, there would be no impact.
- **Collapse** – The proposed Action/Project is located in a rural area which is generally surrounded by flat agricultural lands. The proposed Action/Project would not contribute to ground collapse within the area. The proposed Action/Project would help to combat collapse in the Red Top Area by providing up to an average of an approximately 10,000 acre feet of surface water per year to the Area. However, the project elements may be subject to collapse. In the event of a collapse, project-related infrastructure may be impacted. However, impacts would not expose people or structures to

¹¹ California Department of Conservation. California Geologic Survey regulatory maps. <http://www.quake.ca.gov/gmaps/WH/landslidemaps.htm> Accessed October 27, 2015.

¹² California Department of Conservation. California Geologic Survey regulatory maps. <http://www.quake.ca.gov/gmaps/WH/regulatorymaps.htm> Accessed October 27, 2015.

potential substantial adverse effects, including the risk of loss, injury, or death. The only effect from a collapse would be that the District would need to repair any failures in infrastructure. Therefore, impacts are less than significant.

VI -d) Be located on expansive soil, as defined in Table 18-1-B of the most recently adopted Uniform Building Code creating substantial risks to life or property?

Less Than Significant Impact. On October 27, 2015, Provost and Pritchard Consulting Group conducted a United States Department of Agriculture Natural Resource Conservation Service Custom Soil Resource Report for the proposed Action/Project. The results found that the proposed Action/Project site includes Elnido sandy loam (17.4%), Bisgani-Elnido association (19.8%), Columbia fine sandy loam (51.5%) and Water (11.4%). These soils are poorly drained and have limited building potential due to flooding in the area and shrink swell potential. However, the proposed Action/Project is a new turnout and an underground pipeline. No buildings would be built and no personnel will be housed on site. Therefore, impacts would be less than significant.

VI-e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

No Impact. The proposed Action/Project does not involve the use of septic tanks or other alternative waste water disposal system. Therefore, no impact would occur.

1.7 Greenhouse Gas Emissions

Table 1-12. Greenhouse Gas Emissions

Greenhouse Gas Emissions				
Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	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?	☐	☐	☒	☐

1.7.1 Environmental Setting

1.7.1.1 Climate Change

According to the *Office of Planning and Research's June 2014 Draft California Climate Change Research Plan*,

Climate change is the biggest environmental challenge of our time. California has long been a global leader in addressing climate-related issues through cutting-edge research and innovative climate policies. Governor Brown recently joined more than 500 world-renowned researchers and scientists in releasing a groundbreaking call to action on climate change and other global threats to humanity. The 20-page consensus statement was produced at Governor Brown's request and has been signed by scientists from over 40 countries. The consensus statement connects key scientific findings from different fields into a clear warning and a call for immediate, substantial, and sustained action to preserve humanity's life support systems. The science in the consensus statement is confirmed in the October 2013 report of scientific findings by the Intergovernmental Panel on Climate Change (IPCC). The IPCC report states that "[h]uman influence has been detected in warming of the atmosphere and the ocean, in changes in the global water cycle, in reductions in snow and ice, in global mean sea level rise, and in changes in some climate extremes." The IPCC further concludes that "human influence has been the dominant cause of the observed warming since the mid-20th century" (IPCC 2013).

*As shown in the report *Indicators of Climate Change in California* (Office of Environmental Health Hazard Assessment 2013), observations over the last several decades reveal clear signals of climate change and its effects in California. The growing body of scientific research shows unequivocally that this change is associated with the release of carbon dioxide and other greenhouse gases (GHGs) resulting from burning fossil fuels as well as other human activities. Using sophisticated computer models, climate research projects an unprecedented rate of rise in temperature with shifting patterns of precipitation and more extreme weather events in the future. Climate change and the efforts of the State to confront it will touch nearly every aspect of the state's planning and investment for the future. Over the next few decades, significant reductions in GHG emissions will be necessary to avoid the worst consequences of climate change. At the same time, California must escalate and accelerate its efforts to safeguard the State from the already-observable climate change as well as the larger changes that will be unavoidable in the future. Scientific research sponsored by the State of California has provided new knowledge that has enabled California to respond with science-based policies. New, carefully targeted research is necessary to inform future policy development and implementation¹³.*

¹³http://www.climatechange.ca.gov/climate_action_team/reports/CLEAN_CAT_research_plan_final_draft_05June14.pdf
<http://oehha.ca.gov/multimedia/epic/pdf/ClimateChangeIndicatorsReport2013.pdf>

1.7.1.2 Greenhouse Gases

According to the San Joaquin Valley Air Pollution Control District's 2014 Draft Guidance for Assessing and Mitigating Air Quality Impacts,

Greenhouse gases (GHGs) are gases that absorb and emit radiation within the thermal infrared range, trapping heat in the earth's atmosphere. There are no "attainment" concentration standards established by the Federal or State government for greenhouse gases. In fact, GHGs are not generally thought of as traditional air pollutants because greenhouse gases, and their impacts, are global in nature, while air pollutants affect the health of people and other living things at ground level, in the general region of their release to the atmosphere. Some greenhouse gases occur naturally and are emitted into the atmosphere through both natural processes and human activities. Other GHGs are created and emitted solely through human activities. The principal greenhouse gases that enter the atmosphere because of human activities are carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), and fluorinated carbons¹⁴.

1.7.2 Regulatory Setting

1.7.2.1 Federal

Although climate change and GHG reduction is a concern at the federal level; currently there are no regulations or legislation that have been enacted specifically addressing GHG emissions reductions and climate change at the project level. Neither the U.S. EPA nor the Federal Highway Administration (FHWA) has promulgated explicit guidance or methodology to conduct project-level GHG analysis. However, the FHWA recommends that climate change impacts and strategies to reduce GHG emissions should be considered and integrated throughout the transportation decision-making process. Such strategies include implementation of improved transportation system efficiency, use of cleaner fuels and cleaner vehicles, and a reduction in the growth of vehicle hours travelled. Climate change and its associated effects are being addressed through various efforts at the federal level to improve fuel economy and energy efficiency, such as the "National Clean Car Program" and EO 13514 - Federal Leadership in Environmental, Energy and Economic Performance (Caltrans 2013).

Executive Order 13514: Executive Order 13514 is focused on reducing greenhouse gases internally in federal agency missions, programs and operations, but also directs federal agencies to participate in the Interagency Climate Change Adaptation Task Force, which is engaged in developing a national strategy for adaptation to climate change (Caltrans 2013).

On April 2, 2007, in *Massachusetts v. EPA*, 549 U.S. 497 (2007), the Supreme Court found that greenhouse gases are air pollutants covered by the Clean Air Act and that the U.S. EPA has the authority to regulate GHG. The Court held that the U.S. EPA Administrator must determine whether or not emissions of greenhouse gases from new motor vehicles cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision (Caltrans 2013).

On December 7, 2009, the U.S. EPA Administrator signed two distinct findings regarding greenhouse gases under section 202(a) of the Clean Air Act (Caltrans 2013):

- **Endangerment Finding** – The Administrator found that the current and projected concentrations of the six key well-mixed greenhouse gases—carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆)—in the atmosphere threaten the public health and welfare of current and future generations.

¹⁴http://www.valleyair.org/Workshops/postings/2014/07-23-14_GAMAQI/DRAFT_GAMAQI_2014_July_7.pdf

- **Cause or Contribute Finding** – The Administrator found that the combined emissions of these well-mixed greenhouse gases from new motor vehicles and new motor vehicle engines contribute to the GHG pollution which threatens public health and welfare.

Although these findings did not themselves impose any requirements on industry or other entities, this action was a prerequisite to finalizing the U.S. EPA's Proposed Greenhouse Gas Emission Standards for Light-Duty Vehicles, which was published on September 15, 2009. On May 7, 2010 the final Light-Duty Vehicle Greenhouse Gas Emissions Standards and Corporate Average Fuel Economy Standards was published in the Federal Register.

U.S. EPA and the National Highway Traffic Safety Administration (NHTSA) are taking coordinated steps to enable the production of a new generation of clean vehicles with reduced GHG emissions and improved fuel efficiency from on-road vehicles and engines. These next steps include developing the first-ever GHG regulations for heavy-duty engines and vehicles, as well as additional light-duty vehicle GHG regulations. These steps were outlined by President Obama in a Presidential Memorandum on May 21, 2010.

The final combined U.S. EPA and NHTSA standards that make up the first phase of this national program apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. The standards require these vehicles to meet an estimated combined average emissions level of 250 grams of CO₂ per mile, (the equivalent to 35.5 miles per gallon if the automobile industry were to meet this CO₂ level solely through fuel economy improvements). Together, these standards will cut GHG emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012-2016). On November 16, 2011, U.S. EPA and NHTSA issued their joint proposal to extend this national program of coordinated greenhouse gas and fuel economy standards to model years 2017 through 2025 passenger vehicles (Caltrans 2013).

1.7.2.2 State

Assembly Bill 1493: Assembly Bill (AB) 1493 (Pavley) of 2002 (Health and Safety Code Sections 42823 and 43018.5) requires the California Air Resources Board (ARB) to develop and adopt the nation's first GHG emission standards for automobiles. These standards are also known as Pavley I. The California Legislature declared in AB 1493 that global warming is a matter of increasing concern for public health and the environment. It cites several risks that California faces from climate change, including a reduction in the state's water supply, an increase in air pollution caused by higher temperatures, harm to agriculture, an increase in wildfires, damage to the coastline, and economic losses caused by higher food, water, energy, and insurance prices. The bill also states that technological solutions to reduce GHG emissions would stimulate California's economy and provide jobs. In 2004, the State of California submitted a request for a waiver from federal clean air regulations, as the State is authorized to do under the Clean Air Act, to allow the State to require reduced tailpipe emissions of CO₂. In late 2007, the USEPA denied California's waiver request and declined to promulgate adequate federal regulations limiting GHG emissions. In early 2008, the State brought suit against the USEPA related to this denial.

In January 2009, President Obama instructed the USEPA to reconsider the Bush Administration's denial of California's and 13 other states' requests to implement global warming pollution standards for cars and trucks. In June 2009, the USEPA granted California's waiver request, enabling the State to enforce its GHG emissions standards for new motor vehicles beginning with the current model year.

Also in 2009, President Obama announced a national policy aimed at both increasing fuel economy and reducing GHG pollution for all new cars and trucks sold in the US. The new standards would cover model years 2012 to 2016 and would raise passenger vehicle fuel economy to a fleet average of 35.5 miles per gallon by 2016. When the national program takes effect, California has committed to allowing automakers who show compliance with the national program to also be deemed in compliance with state requirements.

California is committed to further strengthening these standards beginning in 2017 to obtain a 45 percent GHG reduction from the 2020 model year vehicles.

Executive Order No. S-3-05: Executive Order No. S-3-05 was signed on June 1, 2005, by former Governor Arnold Schwarzenegger. The goal of this EO is to reduce California's GHG emissions to: 1) year 2000 levels by 2010, 2) year 1990 levels by the 2020, and 3) 80 percent below the year 1990 levels by the year 2050. In 2006, this goal was further reinforced with the passage of Assembly Bill 32.

Executive Order S-6-06: Executive Order S-6-06 (State of California), signed on April 25, 2006, established two primary goals related to the use of biofuels within California, including: (1) by 2010, 20 percent of its biofuels need to be produced within California; increasing to 40 percent by 2020 and 75 percent by 2050; and (2) by 2010, 20 percent of the renewable electricity should be generated from biomass resources within the state, maintaining this level through 2020.

Assembly Bill 32: California Global Warming Solutions Act of 2006: AB 32 (Health and Safety Code Sections 38500, 38501, 28510, 38530, 38550, 38560, 38561–38565, 38570, 38571, 38574, 38580, 38590, 38592–38599) requires that statewide GHG emissions be reduced to 1990 levels by the year 2020. The gases that are regulated by AB 32 include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, nitrogen trifluoride, and sulfur hexafluoride. The reduction to 1990 levels will be accomplished through an enforceable statewide cap on GHG emissions that will be phased in starting in 2012. To effectively implement the cap, AB 32 directs ARB to develop and implement regulations to reduce statewide GHG emissions from stationary sources. AB 32 specifies that regulations adopted in response to AB 1493 should be used to address GHG emissions from vehicles. However, AB 32 also includes language stating that if the AB 1493 regulations cannot be implemented, then ARB should develop new regulations to control vehicle GHG emissions under the authorization of AB 32.

AB 32 requires that ARB adopt a quantified cap on GHG emissions representing 1990 emissions levels and disclose how it arrives at the cap, institute a schedule to meet the emissions cap, and develop tracking, reporting, and enforcement mechanisms to ensure that the state achieves reductions in GHG emissions necessary to meet the cap. AB 32 also includes guidance to institute emissions reductions in an economically efficient manner and conditions to ensure that businesses and consumers are not unfairly affected by the reductions.

Climate Change Scoping Plan: In October 2008, ARB published its Climate Change Proposed Scoping Plan, which is the State's plan to achieve GHG reductions in California required by AB 32. The Scoping Plan contains the main strategies California will implement to achieve reduction of 169 million metric tons (MMT) of CO_{2e}, or approximately 30 percent from the state's projected 2020 emissions level of 596 MMTCO_{2e} under a business-as-usual scenario (this is a reduction of 42 MMTCO_{2e}, or almost 10 percent, from 2002–2004 average emissions). The Scoping Plan also includes ARB-recommended GHG reductions for each emissions sector of the state's GHG inventory. The largest proposed GHG reduction recommendations are from improving emissions standards for light-duty vehicles (estimated reductions of 31.7 MMTCO_{2e}), implementation of the Low Carbon Fuel Standard (15.0 MMTCO_{2e}) program, energy efficiency measures in buildings and appliances and the widespread development of combined heat and power systems (26.3 MMTCO_{2e}), and a renewable portfolio standard for electricity production (21.3 MMTCO_{2e}). The Scoping Plan identifies the local equivalent of AB 32 targets as a 15 percent reduction below baseline GHG emissions level, with baseline interpreted as GHG emissions levels between 2003 and 2008.

A key component of the Scoping Plan is the Renewable Portfolio Standard, which is intended to increase the percentage of renewables in California's electricity mix to 33 percent by year 2020, resulting in a reduction of 21.3 MMTCO_{2e}. Sources of renewable energy include, but are not limited to, biomass, wind, solar, geothermal, hydroelectric, and anaerobic digestion. Increasing the use of renewables will decrease California's reliance on fossil fuels, thus reducing GHG emissions.

The Scoping Plan states that land use planning and urban growth decisions will play important roles in the state's GHG reductions because local governments have primary authority to plan, zone, approve, and permit how land is developed to accommodate population growth and the changing needs of their jurisdictions. (Meanwhile, ARB is also developing an additional protocol for community emissions.) ARB further acknowledges that decisions on how land is used will have large impacts on the GHG emissions that will result from the transportation, housing, industry, forestry, water, agriculture, electricity, and natural gas emissions sectors. The Scoping Plan states that the ultimate GHG reduction assignment to local government operations is to be determined. With regard to land use planning, the Scoping Plan expects approximately 5.0 MMTCO_{2e} will be achieved associated with implementation of Senate Bill 375, which is discussed further below. The Climate Change Proposed Scoping Plan was approved by ARB on December 11, 2008.

The First Update of the Scoping Plan was approved by the ARB on May 22, 2014, which looked past 2020 to set mid-term goals (2030-2035) on the road to reaching the 2050 goals. ARB's Key Action for the Waste Sector focused on eliminating organics from the landfill starting in 2016 and financing the in-state infrastructure development of composting and anaerobic digestion facilities. ARB's Key Action for Short-lived Climate Pollutants such as methane is to develop a comprehensive strategy by 2015 which will focus on methane generated at landfills from the disposal of organic wastes.

Senate Bill 97 - CEQA: Greenhouse Gas Emissions Senate Bill 97, signed in August 2007, acknowledges that climate change is an important environmental issue that requires analysis under CEQA. This bill directs the Governor's Office of Planning and Research to prepare, develop, and transmit to the Resources Agency guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions, by July 1, 2009. The Resources Agency is required to certify or adopt those guidelines by January 1, 2010. Amendments to the CEQA guidelines took effect March 18, 2010. The revisions include a new section (Sec. 15064.4) that specifically addresses the potential significance of GHG emissions. Section 15064.4 calls for a "good-faith effort" to "describe, calculate or estimate" GHG emissions. Section 15064.4 further states that a lead agency "should" consider several factors when assessing the significance of impacts from GHG emissions on the environment, including: the extent to which the project would increase or reduce GHG emissions; whether project emissions exceed an applicable threshold of significance; and the extent to which the project complies with "regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions." The guidelines also state that a lead agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project will comply with the requirements of previously approved plan or mitigation program (Sec. 15064(h)(3)). However, the guidelines do not require or recommend a specific analytical methodology or provide quantitative criteria for determining the significance of GHG emissions.

This bill also protected projects until January 1, 2010 that were funded by the Highway Safety, Traffic Reduction, Air Quality and Port Security Bond Act of 2006, or the Disaster Preparedness and Flood Protection Bond Act of 2006 (Proposition 1B or 1E) from claims of inadequate analysis of GHG as a legitimate cause of action. Thus, this "protection" is highly limited to a handful of projects and for a short time period (CAPCOA 2008).

Senate Bill 1368: Senate Bill (SB) 1368 (codified at Public Utilities Code Chapter 3) is the companion bill of AB 32. SB 1368 required the California Public Utilities Commission (CPUC) to establish a greenhouse gas emissions performance standard for baseload generation from investor-owned utilities by February 1, 2007. The bill also required the California Energy Commission (CEC) to establish a similar standard for local publicly owned utilities by June 30, 2007. These standards cannot exceed the greenhouse gas emission rate from a baseload combined-cycle natural-gas-fired plant. The legislation further requires that all electricity provided to California, including imported electricity, must be generated from plants that meet the standards set by the CPUC and the CEC.

Senate Bill 1078 and Governor's Order S-14-08 (California Renewables Portfolio Standards): Senate Bill 1078 (Public Utilities Code Sections 387, 390.1, 399.25 and Article 16) addresses electricity supply and requires that retail sellers of electricity, including investor-owned utilities and community choice aggregators, provide a minimum 20 percent of their supply from renewable sources by 2017. This Senate Bill will affect statewide GHG emissions associated with electricity generation. In 2008, Governor Schwarzenegger signed Executive Order S-14-08, which set the Renewables Portfolio Standard target to 33 percent by 2020. It directed state government agencies and retail sellers of electricity to take all appropriate actions to implement this target. The proposed Action/Project area would receive energy service from the investor-owned Pacific Gas and Electric Company.

Prior to the Executive Order, the CPUC and the CEC were responsible for implementing and overseeing the Renewables Portfolio Standard. The Executive Order shifted that responsibility to ARB, requiring it to adopt regulations by July 31, 2010. ARB is required by current law, AB 32 of 2006, to regulate sources of greenhouse gases to meet a state goal of reducing greenhouse gas emissions to 1990 levels by 2020 and an 80 percent reduction of 1990 levels by 2050. The CEC and CPUC are expected to serve in advisory roles to help ARB develop the regulations to administer the 33 percent by 2020 requirement. Additionally, the CEC and CPUC will continue their implementation and administration of the 20 percent requirement. The Executive Order also stipulates that ARB may delegate to the CPUC and CEC any policy development or program implementation responsibilities that would reduce duplication and improve consistency with other energy programs. ARB is also authorized to increase the target and accelerate and expand the time frame.

The general definition under the State Renewables Portfolio Standard for biomass is any organic material not derived from fossil fuels, including agricultural crops, agricultural wastes and residues, waste pallets, crates, dunnage, manufacturing, and construction wood wastes, landscape and right-of-way tree trimmings, mill residues that result from milling lumber, rangeland maintenance residues, sludge derived from organic matter, and wood and wood waste from timbering operations. Biomass feedstock from state and national forests is allowable under the definition.

Executive Order S-13-08: The Climate Adaptation and Sea Level Rise Planning Directive: On November 14, 2008, Governor Schwarzenegger issued Executive Order S-13-08 in order to reduce and assess California's vulnerability to climate change and sea level rise. The Executive Order initiated four major actions:

- Initiate California's first statewide climate change adaptation strategy that will assess the state's expected climate change impacts, identify where California is most vulnerable, and recommend climate adaptation policies by early 2009.
- Request the National Academy of Sciences establish an expert panel to report on sea level rise impacts in California to inform state planning and development efforts.
- Issue interim guidance to state agencies for how to plan for sea level rise in designated coastal and floodplain areas for new projects.
- Initiate a report on critical existing and planned infrastructure projects vulnerable to sea level rise. This report was released in 2009 as the California Adaptation Strategy¹⁵.

Mandatory Reporting of Greenhouse Gas Emissions: Reporting of greenhouse gases by major sources is required by the California Global Warming Solutions Act (AB 32, 2006). Revisions to the existing ARB mandatory GHG reporting regulation were considered at the board hearing on December 16, 2010. The revised regulation was approved by the California Office of Administrative Law and became effective on

¹⁵ California Natural Resources Agency. 2009 California Climate Adaptation Strategy. http://resources.ca.gov/docs/climate/Statewide_Adaptation_Strategy.pdf. Website accessed November 2015.

January 1, 2012. The revised regulation affects industrial facilities, suppliers of transportation fuels, natural gas, natural gas liquids, liquefied petroleum gas, and carbon dioxide, operators of petroleum and natural gas systems, and electricity retail providers and marketers.

Cap-and-Trade Regulation: The cap-and-trade regulation is a key element in California's climate plan. It sets a statewide limit on sources responsible for 85 percent of California's greenhouse gas emissions, and establishes a price signal needed to drive long-term investment in cleaner fuels and more efficient use of energy. The cap-and-trade rules came into effect on January 1, 2013 and apply to large electric power plants and large industrial plants. In 2015, they will extend to fuel distributors (including distributors of heating and transportation fuels). At that stage, the program will encompass nearly 85 percent of the state's total greenhouse gas emissions.

GHG emissions addressed by the cap-and-trade regulation are subject to an industry-wide cap on overall GHG emissions. The cap-and-trade regulation sets a firm limit or cap on GHGs, which declines approximately 3 percent each year beginning in 2013. Any growth in emissions must be accounted for under the cap, such that a corresponding and equivalent reduction in emissions must occur to allow any increase. The cap-and-trade regulation will help California achieve its goal of reducing GHG emissions to 1990 levels by the year 2020, and ultimately achieving an 80% reduction from 1990 levels by 2050. As such, the ARB has determined that the cap-and-trade regulation meets the requirements of AB 32.

1.7.2.3 Regional

San Joaquin Valley Air Pollution Control District

The San Joaquin Valley Air Pollution Control District provides guidance for addressing greenhouse gas emissions under CEQA. The SJVAPCD guidance for evaluating greenhouse gas significance states that projects implementing best performance standards, reducing project specific GHG emissions by at least 29 percent compared to "business as usual" and consistent with GHG emissions reduction targets established in the AB 32 Scoping Plan would be determined to have a less than significant individual and cumulative impact on global climate change. Business as usual is defined as unmitigated emissions (the California Air Resources Board Scoping Plan identifies the local equivalent of AB 32 targets as a 15 percent reduction below baseline GHG emissions level, with baseline interpreted as GHG emissions levels between 2003 and 2008)¹⁶.

1.7.3 Impact Assessment

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

VII-b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Less Than Significant Impact. The proposed Action/Project would generate GHG emissions through construction activities. The period of construction would be short-term, and construction-phase GHG emissions would occur directly from the off-road heavy-duty equipment and the on-road motor vehicles needed to mobilize crew, equipment, and materials, and to construct the project. Construction-related emissions are expected to produce a total of 57.46 metric tons of CO₂ during construction.

¹⁶<http://www.valleyair.org/Programs/CCAP/12-17-09/3%20CCAP%20-%20FINAL%20LU%20Guidance%20-%20Dec%2017%202009.pdf>

There would be no long-term operational emissions generated by the proposed Action/Project, because the District already travels to the proposed Action/Project area for other ongoing maintenance needs. For these reasons, implementation of the proposed Action/Project would not be anticipated to conflict with any applicable plan, policy or regulation for reducing the emissions of GHGs, nor would the proposed Action/Project potentially have a significant impact on the environment. This impact would be considered less than significant.

1.8 Hazards and Hazardous Materials

Table 1-13. Hazards and Hazardous Materials

Hazards and Hazardous Materials				
Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	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 for people residing or working in the project area?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☒

1.8.1 Regulatory Setting

1.8.1.1 Federal

Hazardous Materials - U.S. Environmental Protection Agency: The U.S. Environmental Protection Agency (U.S. EPA) was established in 1970 to consolidate in one agency a variety of federal research, monitoring, standard-setting and enforcement activities to ensure environmental protection. U.S. EPA's mission is to protect human health and to safeguard the natural environment — air, water, and land — upon which life depends. U.S. EPA works to develop and enforce regulations that implement environmental laws enacted by Congress, is responsible for researching and setting national standards for a variety of environmental programs, and delegates to states and tribes the responsibility for issuing permits and for monitoring and enforcing

compliance. Where national standards are not met, U.S. EPA can issue sanctions and take other steps to assist the states and tribes in reaching the desired levels of environmental quality.

Federal Toxic Substances Control Act/Resource Conservation and Recovery Act/Hazardous and Solid Waste Act:

The Federal Toxic Substances Control Act (1976) and the Resource Conservation and Recovery Act of 1976 (RCRA) established a program administered by the U.S. EPA for the regulation of the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA was amended in 1984 by the Hazardous and Solid Waste Act (HSWA), which affirmed and extended the “cradle to grave” system of regulating hazardous wastes.

Comprehensive Environmental Response, Compensation, and Liability Act/Superfund Amendments and

Reauthorization Act: The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), commonly known as Superfund, was enacted by Congress on December 11, 1980. This law (U.S. Code Title 42, Chapter 103) provides broad federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. CERCLA establishes requirements concerning closed and abandoned hazardous waste sites; provides for liability of persons responsible for releases of hazardous waste at these sites; and establishes a trust fund to provide for cleanup when no responsible party can be identified. CERCLA also enables the revision of the National Contingency Plan (NCP). The NCP (Title 40, Code of Federal Regulation [CFR], Part 300) provides the guidelines and procedures needed to respond to releases and threatened releases of hazardous substances, pollutants, and/or contaminants. The NCP also established the National Priorities List (NPL). CERCLA was amended by the Superfund Amendments and Reauthorization Act (SARA) on October 17, 1986.

Clean Water Act/SPCC Rule: The Clean Water Act (CWA) (33 U.S.C. Section 1251 et seq., formerly the Federal Water Pollution Control Act of 1972), was enacted with the intent of restoring and maintaining the chemical, physical, and biological integrity of the waters of the United States. As part of the Clean Water Act, the U.S. EPA oversees and enforces the Oil Pollution Prevention regulation contained in Title 40 of the CFR, Part 112 (Title 40 CFR, Part 112) which is often referred to as the “SPCC rule” because the regulations describe the requirements for facilities to prepare, amend and implement Spill Prevention, Control, and Countermeasure (SPCC) Plans. A facility is subject to SPCC regulations if a single oil storage tank has a capacity greater than 660 gallons, or the total above ground oil storage capacity exceeds 1,320 gallons, or the underground oil storage capacity exceeds 42,000 gallons, and if, due to its location, the facility could reasonably be expected to discharge oil into or upon the “Navigable Waters” of the United States. Other federal regulations overseen by the U.S. EPA relevant to hazardous materials and environmental contamination include Title 40, CFR, Chapter 1, Subchapter D – Water Programs and Subchapter I – Solid Wastes. Title 40, CFR, Chapter 1, Subchapter D, Parts 116 and 117 designate hazardous substances under the Federal Water Pollution Control Act. Title 40, CFR, Part 116 sets forth a determination of the reportable quantity for each substance that is designated as hazardous. Title 40, CFR, Part 117 applies to quantities of designated substances equal to or greater than the reportable quantities that may be discharged into waters of the United States.

The NFPA 70®: National Electrical Code® is adopted in all 50 states¹⁷. Any electrical work associated with the proposed Action/Project is required to comply with the standards set forth in this code.

Several federal regulations govern hazards as they are related to transportation issues. They include:

- Title 49, CFR, Sections 171-177 (49 CFR 171-177), governs the transportation of hazardous materials, the types of materials defined as hazardous, and the marking of the transportation vehicles.
- 49 CFR 350-399, and Appendices A-G, Federal Motor Carrier Safety Regulations, address safety considerations for the transport of goods, materials, and substances over public highways.

¹⁷ National Fire Protection Association, 2015. NFPA 70: National Fire Code.

- 49 CFR 397.9, the Hazardous Materials Transportation Act of 1974, directs the U.S. Department of Transportation to establish criteria and regulations for the safe transportation of hazardous materials.

1.8.1.2 State

California Environmental Protection Agency (CalEPA): The California Environmental Protection Agency (CalEPA) was created in 1991 by Governor's Executive Order. The six boards, departments, and office were placed under the CalEPA umbrella to create a cabinet-level voice for the protection of human health and the environment and to assure the coordinated deployment of State resources. The mission of CalEPA is to restore, protect, and enhance the environment to ensure public health, environmental quality, and economic vitality under Title 22 of the California Code of Regulations (CCR)¹⁸

Department of Toxic Substances Control (DTSC): DTSC is a department of Cal/EPA and is the primary agency in California that regulates hazardous waste, cleans-up existing contamination, and looks for ways to reduce the hazardous waste produced in California. DTSC regulates hazardous waste in California primarily under the authority of RCRA and the California Health and Safety Code. Other laws that affect hazardous waste are specific to handling, storage, transportation, disposal, treatment, reduction, cleanup, and emergency planning. Government Code Section 65962.5 (commonly referred to as the Cortese List) includes DTSC listed hazardous waste facilities and sites, DHS lists of contaminated drinking water wells, sites listed by the SWRCB as having UST leaks and which have had a discharge of hazardous wastes or materials into the water or groundwater, and lists from local regulatory agencies of sites that have had a known migration of hazardous waste/material.¹⁹

Unified Program: The Unified Program (codified CCR Title 27, Division 1, Subdivision 4, Chapter 1, Sections 15100- 15620) consolidates, coordinates, and makes consistent the administrative requirements, permits, inspections, and enforcement activities of the following six environmental and emergency response programs²⁰:

- Hazardous Waste Generator (HWG) program and Hazardous Waste On-site Treatment activities;
- Aboveground Storage Tank (AST) program Spill Prevention Control and Countermeasure Plan requirements;
- Underground Storage Tank (UST) program;
- Hazardous Materials Release Response Plans and Inventory (HMRRP) program;
- California Accidental Release Prevention (CalARP) program;
- Hazardous Materials Management Plans and Hazardous Materials Inventory Statement (HMMP/HMIS) requirements.

The Secretary of CalEPA is directly responsible for coordinating the administration of the Unified Program. The Unified Program requires all counties to apply to the CalEPA Secretary for the certification of a local unified program agency. Qualified cities are also permitted to apply for certification. The local Certified Unified Program Agency (CUPA) is required to consolidate, coordinate, and make consistent the administrative requirements, permits, fee structures, and inspection and enforcement activities for these six program elements in the county. Most CUPAs have been established as a function of a local environmental health or fire department.

¹⁸ California Environmental Protection Agency. <http://www.calepa.ca.gov> Accessed January 27, 2015.

¹⁹ California Department of Toxic Substances Control. <http://www.dtsc.ca.gov/> Accessed January 27, 2015.

²⁰ California Environmental Protection Agency. <http://www.calepa.ca.gov/cupa/> Accessed January 27, 2015.

Hazardous Waste Control Act: The Hazardous Waste Control Act created the state hazardous waste management program, which is similar to but more stringent than the federal Resource Conservation and Recovery Act program. The act is implemented by regulations contained in Title 26 of the CCR, which describes the following required aspects for the proper management of hazardous waste:

- Identification and classification;
- Generation and transportation;
- Design and permitting of recycling, treatment, storage, and disposal facilities;
- Treatment standards;
- Operation of facilities and staff training; and
- Closure of facilities and liability requirements.

These regulations list more than 800 materials that may be hazardous and establish criteria for identifying, packaging, and disposing of such waste. Under the Hazardous Waste Control Act and Title 26, the generator of hazardous waste must complete a manifest that accompanies the waste from generator to transporter to the ultimate disposal location. Copies of the manifest must be filed with the California Department of Toxic Substances and Control.

Unified Hazardous Waste and Hazardous Materials Management Regulatory Program: The Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (Unified Program) requires the administrative consolidation of six hazardous materials and waste programs (Program Elements) under one agency, a Certified Unified Program Agency (CUPA). Though established by the State, the Program Elements are implemented by the Kern County Environmental Health Services Department (KCEHSD), which serves as the CUPA for the County of Kern. Therefore, the Program Elements implemented by KCEHSD are explained further under the Kern County regulatory setting.

California Education Code: The California Education Code Section 17213(a)(3) prohibits the approval of a school site if the site “contains one or more pipelines, situated underground or aboveground, which carries hazardous substances, acutely hazardous substances, or hazardous wastes, unless the pipeline is a natural gas line which is used only to supply natural gas to that school or neighborhood.” California Education Code Section 17213.1 requires DTSC to be involved in the environmental review process for the acquisition or construction of a school property utilizing state funding. The responsible school board is required to contract with an environmental assessor to supervise the preparation of a site evaluation to determine the potential for hazards or hazardous materials to exist on or near the site that could affect future staff and students, prior to acquiring a school site.

Hazardous Waste Management Program: The Hazardous Waste Management Program (HWMP) regulates hazardous waste through its permitting, enforcement, and Unified Program activities in accordance with California Health and Safety Code Section 25135 et seq. The main focus of HWMP is to ensure the safe storage, treatment, transportation, and disposal of hazardous wastes.

State Water Resources Control Board (SWRCB): The State Water Resources Control Board (SWRCB) was created by the California legislature in 1967. The mission of SWRCB is to ensure the highest reasonable quality for waters of the State, while allocating those waters to achieve the optimum balance of beneficial uses. The joint authority of water allocation and water quality protection enables SWRCB to provide comprehensive protection for California’s waters.

California Department of Industrial Relations – Division of Occupational Safety and Health (Cal OSHA): In California, every employer has a legal obligation to provide and maintain a safe and healthful workplace for employees, according to the California Occupational Safety and Health Act of 1973 (per Title 8 of the CCR). The Division of Occupational Safety and Health (Cal/OSHA) program is responsible for enforcing California

laws and regulations pertaining to workplace safety and health and for providing assistance to employers and workers about workplace safety and health issues. Cal/OSHA regulations are administered through Title 8 of the CCR. The regulations require all manufacturers or importers to assess the hazards of substances that they produce or import and all employers to provide information to their employees about the hazardous substances to which they may be exposed.

California Office of Emergency Services: In order to protect the public health and safety and the environment, the California OES is responsible for establishing and managing statewide standards for business and area plans relating to the handling and release or threatened release of hazardous materials. Basic information on hazardous materials handled, used, stored, or disposed of (including location, type, quantity, and the health risks) needs to be available to firefighters, public safety officers, and regulatory agencies needs to be included in business plans in order to prevent or mitigate the damage to the health and safety of persons and the environment from the release or threatened release of these materials into the workplace and environment. These regulations are covered under Chapter 6.95 of the California Health and Safety Code Article 1—Hazardous Materials Release Response and Inventory Program (Sections 25500 to 25520) and Article 2—Hazardous Materials Management (Sections 25531 to 25543.3). CCR Title 19, Public Safety, Division 2, Office of Emergency Services, Chapter 4—Hazardous Material Release Reporting, Inventory, And Response Plans, Article 4 (Minimum Standards for Business Plans) establishes minimum statewide standards for Hazardous Materials Business Plans (HMBPs). These plans shall include the following: (1) a hazardous material inventory in accordance with Sections 2729.2 to 2729.7; (2) emergency response plans and procedures in accordance with Section 2731; and (3) training program information in accordance with Section 2732.

Business plans contain basic information on the location, type, quantity, and health risks of hazardous materials stored, used, or disposed of in the state. Each business shall prepare a HMBP if that business uses, handles, or stores a hazardous material or an extremely hazardous material in quantities greater than or equal to the following:

- 500 pounds of a solid substance
- 55 gallons of a liquid
- 200 cubic feet of compressed gas
- A hazardous compressed gas in any amount
- Hazardous waste in any quantity.

1.8.2 Impact Assessment

VIII-a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

No Impact: The construction and operation of the proposed Action/Project would not result in the storage or use of significant amounts of hazardous materials. While it may be necessary to periodically transport incidental volumes of fuel and equipment maintenance materials to the site during the construction process to support the use of construction equipment, such transport is routine and would be conducted by professionally insured haulers. Other types of hazardous materials would not likely be required to construct the proposed Action/Project. Following construction, the proposed Action/Project would not require transportation, use, or storage of hazardous materials. Therefore, no impact would occur.

VIII-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?

No Impact. The proposed Action/Project would not create a significant hazard to the public or the environment as the Project would not discharge hazardous materials into the environment. Therefore, no impact would occur.

VIII-c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

No Impact. There are no schools within three miles of the proposed Action/Project site. The proposed Action/Project would not emit hazardous emissions, involve hazardous materials, or create a hazard to the schools in any way. Therefore, no impact would occur.

VIII-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?

No Impact. On October 27, 2015, Provost and Pritchard Consulting Group conducted a records search in the Department of Toxic Substances Control EnviroStor database. The search did not find any active hazardous sites within two miles of the proposed Action/Project site. Therefore, the proposed Action/Project does not involve land that is listed as a hazardous materials site pursuant to Government Code Section 65962.5 and is not included on a list compiled by the Department of Toxic Substances Control. Therefore, no impact would occur.

VIII-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 for people residing or working in the project area?

No Impact. The proposed Action/Project is not located within two miles of any Airport. The project site is not located within an Airport Land Use Commission Plan boundary. Based on this finding, the project would not result in a safety hazard for people residing or working in the area. Therefore, no impacts would occur.

VIII-f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?

No Impact. The nearest private airport is Triangle T Ranch Airport which is located approximately 3.8 miles northeast of the proposed Action/Project. Therefore, no impacts would occur.

VIII-g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

No Impact. The proposed Action/Project would not result in the permanent or temporary closure of any roadways. All construction activities will be scheduled and roadways will remain open to ensure the proposed Action/Project will not temporarily impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. The long term operation of the turnout and pipeline will not affect any roadways. Therefore, there is no impact.

VIII-h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

No Impact. According to the California Department of Forestry and Fire Prevention, Fire Hazard Severity Zones Map, the proposed Action/Project area is not located in a Fire Hazard Severity Zone²¹. Based on the setting and the nature of the Project, it would not expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands. Therefore, no impacts would occur.

²¹ California Department of Forestry and Fire Prevention. Fire Hazard Severity Zones. http://www.fire.ca.gov/fire_prevention/fhsz_maps_madera Site Accessed October 27, 2015.

1.9 Hydrology and Water Quality

Table 1-14. Hydrology and Water Quality

Hydrology and Water Quality				
Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☐	☒
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	☒
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☐	☐	☒
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☐	☒
e) 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?	☐	☐	☐	☒
f) Otherwise substantially degrade water quality?	☐	☐	☐	☒
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☐	☒
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	☒
j) Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

1.9.1 Regulatory Setting

1.9.1.1 Federal

Federal Emergency Management Agency (FEMA) Flood Zones: FEMA is the federal agency that oversees floodplains and manages the nation's flood insurance program. FEMA's regulations govern the delineation of flood plains and establish requirements for flood plain management. FEMA conducted extensive map updates as well as digitized all its flood insurance rate maps throughout the nation which was completed in

June of 2009. Flood hazard areas identified on the Flood Insurance Rate Map are identified as a Special Flood Hazard Area (SFHA). SFHA are defined as the area that will be inundated by the flood event having a 1-percent chance of being equaled or exceeded in any given year. The 1-percent annual chance flood is also referred to as the base flood or 100-year flood. SFHAs are labeled as Zone A, Zone AO, Zone AH, Zones A1-A30, Zone AE, Zone A99, Zone AR, Zone AR/AE, Zone AR/AO, Zone AR/A1-A30, Zone AR/A, Zone V, Zone VE, and Zones V1-V30. Moderate flood hazard areas, labeled Zone B or Zone X (shaded) are also shown on the FIRM, and are the areas between the limits of the base flood and the 0.2-percent-annual-chance (or 500-year) flood. The areas of minimal flood hazard, which are the areas outside the SFHA and higher than the elevation of the 0.2-percent-annual-chance flood, are labeled Zone C or Zone X (unshaded).

Clean Water Act: The Clean Water Act (CWA) is the primary federal in govern water pollution. The CWA established a national policy to help maintain and restore the physical, chemical and biological integrity of the nation's waters. The principal body of law currently in effect is based on the Federal Water Pollution Control Amendments of 1972 which significantly strengthen the CWA.

The 1972 act introduced a permit system for regulating point sources of pollution. In California, the State assumed responsibility for implementing the CWA. The following regulatory programs have been developed under the CWA, though they are administered at the State level.

National Pollutant Discharge Elimination System (NPDES): In 1972, the CWA established the National Pollutant Discharge Elimination System (NPDES) permit program to regulate the discharge of pollutants from "point sources" to waters of the nation ("Waters of the U.S."). From 1972 to 1987, the main focus of the NPDES program was to regulate conventional pollutant sources such as sewage treatment plants and industrial facilities. At the same time, the U.S. Environmental Protection Agency (EPA) conducted studies along with public agencies and other entities dealing with urban stormwater and found that runoff from urbanized areas, along with erosion and siltation from construction sites, were major sources of urban runoff pollution. Consequently, the 1987 amendments to the CWA added Section 402(p) requiring the EPA to develop permitting regulations for stormwater discharges from municipal separate storm sewers (MS4s) and industrial facilities, including construction sites.

Impaired Water Bodies: Section 303(d) of the Clean Water Act require states to identify waterbodies that do not meet, or are not expected to meet, water quality standards (i.e., impaired waterbodies). The affected waterbody, and associated pollutant or stressor, is then prioritized in the 303(d) List. The Clean Water Act further requires the development of a Total Maximum Daily Load (TMDL) for each listing. California's current list, approved by the EPA, is the 2006 303(d) List. The 303(d) list is being updated through the development of a 303(d)/305(b) Integrated Report which will address both an update to the 303(d) list and a 305(b) assessment of statewide water quality. The 2008 Integrated Report for the Central Valley Region was approved by the Central Valley Water Board in June 2009 and has been submitted to the State Water Resources Control Board for inclusion in a statewide 2008/2010 California Integrated Report.

1.9.1.2 State

Regional Water Quality Board: The Regional Water Quality Control Board (RWQCB) administers the NPDES storm water-permitting program in the Central Valley region. Construction activities on one acre or more are subject to the permitting requirements of the NPDES General Permit for Discharges of Storm Water Runoff Associated with Construction Activity (General Construction Permit). The General Construction Permit requires the preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP). The plan will include specifications for Best Management Practices (BMPs) that will be implemented during Proposed Action/Project construction to control degradation of surface water by preventing the potential erosion of sediments or discharge of pollutants from the construction area. The General Construction Permit program was established by the RWQCB for the specific purpose of reducing impacts to surface waters that may occur due to construction activities. BMPs have been established by the RWQCB in the California Storm Water

Best Management Practice Handbook (2003), and are recognized as effectively reducing degradation of surface waters to an acceptable level. Additionally, the SWPPP will describe measures to prevent or control runoff degradation after construction is complete, and identify a plan to inspect and maintain these facilities or project elements.

California Water Code: The California Water Code establishes the governing law pertaining to all aspects of water management in California. The California Water Code establishes the Department of Water Resources (DWR) as the primary research and supply development and management agency for water and the State Water Resources Control Board (SWRCB) for overall water quality policy development and for dealing with water rights issues.

California Water Code (Sections 10004 et seq.) requires that the DWR update the State Water Plan every five years. The DWR Water Plan divides the state into 12 hydrologic regions, the proposed Action/Project is located in the San Joaquin River Hydrologic Region.

Porter-Cologne Water Quality Control Act: The Porter-Cologne Water Quality Control Act (California Water Code Division 7, Section 13000 et seq.) covers water protection law in California. This Act entrusted the State Water Board and nine regional boards with broad duties and powers to preserve and enhance all beneficial uses of the state's waterscape. The State Water Board's mandate is to balance, to the extent possible, all uses (domestic, agricultural, or environmental) of California's water resources.

(Stats, 1913, CH. 586): California created a system of appropriating surface water rights (rivers and streams) through a permitting process in 1913 (Stats, 1913, CH. 586) but groundwater has never had any statewide regulation. Groundwater management needs are identified at the local level and may be directly resolved at the local level. If groundwater management needs cannot be directly resolved at the local level, additional actions such as enactment of ordinances by local governments, passage of laws by the Legislature, or decisions by the courts may be necessary to resolve the issues.

AB3030 (Stats. 1992, CH. 947): The most significant legislation regarding groundwater management was passed in 1992. AB3030 (Stats. 1992, CH. 947) greatly increased the number of local agencies authorized to develop a groundwater management plan and detailed a common framework for management by local agencies. AB 3030, codified in Water Code Section 10750 et seq., provides for the formulation and adoption of a plan for an identified groundwater basin. Such plans must include the cooperation and involvement of all holders of water rights and the various water users to be adopted. Upon adoption of a plan and with a majority vote in favor of the proposal in a local election, the agency can fix and collect fees and assessments for groundwater management. There is no Tulare Lake Basin Groundwater Plan or other coordinated County-wide effort to manage groundwater resources²².

Central Valley Flood Protection Board: Under California Water Code § 8534, 8608, and 8710-8723, the Flood Board is required to enforce appropriate standards for the construction, maintenance, and protection of adopted flood control plans that will best protect the public from floods. The Flood Board's jurisdiction encompasses the Central Valley, including all tributaries and distributaries of the Sacramento and San Joaquin Rivers and excluding the Tulare and Buena Vista Basins. The Flood Board exercises jurisdiction over State and federal levees, of which Tulare County has none²³.

California Government Code 65302 (d): A conservation element for the conservation, development, and utilization of natural resources including water and its hydraulic force, forests, soils, river and other waters, harbors, fisheries, wildlife, minerals, and other natural resources. That portion of the conservation element including waters shall be developed in coordination with any County-wide water agency and with all district

²² Tulare County General Plan 2030 Update, Page 3.6-8

²³ Tulare County General Plan 2030 Update, Page 3.6-7

and city agencies which have developed, served, controlled or conserved water for any purpose for the County or city for which the plan is prepared. Coordination shall include the discussion and evaluation of any water supply and demand information described in Section 65352.5, if that information has been submitted by the water agency to the city or County. The conservation element may also cover:

1. The reclamation of land and waters.
2. Prevention and control of the pollution of streams and other waters.
3. Regulation of the use of land in stream channels and other areas required for the accomplishment of the conservation plan.
4. Prevention, control, and correction of the erosion of soils, beaches, and shores.
5. Protection of watersheds.
6. The location, quantity and quality of the rock, sand and gravel resources.
7. Flood control.

Sustainable Groundwater Management Act: On September 16, 2014 Governor Edmund G. Brown Jr. signed historic legislation to strengthen local management and monitoring of groundwater basins most critical to the state's water needs. The three bills, SB 1168 (Pavley) SB 1319 (Pavley) and AB 1739 (Dickinson) together makeup the Sustainable Groundwater Management Act. The Sustainable Groundwater Management Act comprehensively reforms groundwater management in California. The intent of the Act is to place management at the local level, although the state may intervene to manage basins when local agencies fail to take appropriate responsibility. The Act provides authority for local agency management of groundwater, and requires creation of groundwater sustainability agencies and implementation of plans to achieve groundwater sustainability within basins of high and medium-priority including the Chowchilla and Delta-Mendota Sub-basins. The Act took effect on January 1, 2015, and will be implemented over the course of next several years and decades.²⁴

1.9.2 Impact Assessment

IX-a Violate any water quality standards or waste discharge requirements?

No Impact. The proposed Action/Project would not violate any water quality standards or waste discharge requirements since no waste discharges are proposed as part of the Project.

IX-b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?

No Impact. The proposed Action/Project does not include elements that would substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level. The proposed Action/Project

²⁴ California Department of Water Resources. Sustainable Groundwater Management. <http://water.ca.gov/groundwater/sgm/index.cfm> Accessed November 2015.

would, however, would bring in an additional 10,000 acre-feet of water into the Red Top Area, to help with subsidence issues. There would be no impact.

IX-c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?

No Impact. The proposed Action/Project does not alter the existing drainage pattern. Water will be diverted from the Poso Canal and therefore does not alter the course of the San Joaquin River. The water is transmitted under the San Joaquin River and will not cause erosion or siltation.

IX-d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?

Less than Significant Impact. The proposed Action/Project is intended to deliver water to be used on farm. The water delivered will be pumped to deliver to on farm facilities. While the proposed Action/Project does cross a stream channel or alter the course of a stream or river, the disturbance is temporary during construction. Upon completion of the construction the channel will be restored to pre-project conditions. In addition provisions will be made to remove equipment from the channel if water is expected to be delivered during construction. Therefore, it would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site.

IX-e) 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?

No Impact. The proposed Action/Project would not create or contribute to any runoff water. Therefore, no impact would occur.

IX-f) Otherwise substantially degrade water quality?

No Impact. Any impacts to water quality have been discussed in the analysis of Impact IX- a. Therefore, impacts would be no impact.

IX-g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

No Impact. The proposed Action/Project does not consist of housing units. Therefore, no impact would occur.

IX-h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?

No Impact. According to the Federal Emergency Management Agency (FEMA) National Flood Insurance Program (NFIP) Flood Insurance Rate Map (FIRM) Number 06039C0825E dated September 26, 2008, the entire proposed Action/Project area is located within the Zone A 100-year zone (See Figure 1-2 FEMA Map). The 100-year flood is defined as a flood flow that has a 1% chance of being equaled or exceeded in any given year²⁵. However, the construction of facilities will be below existing land surface grades in the

²⁵ United States Department of Homeland Security. Federal Emergency Management Agency. <https://www.fema.gov/national-flood-insurance-program/definitions>. Website accessed November 2015.

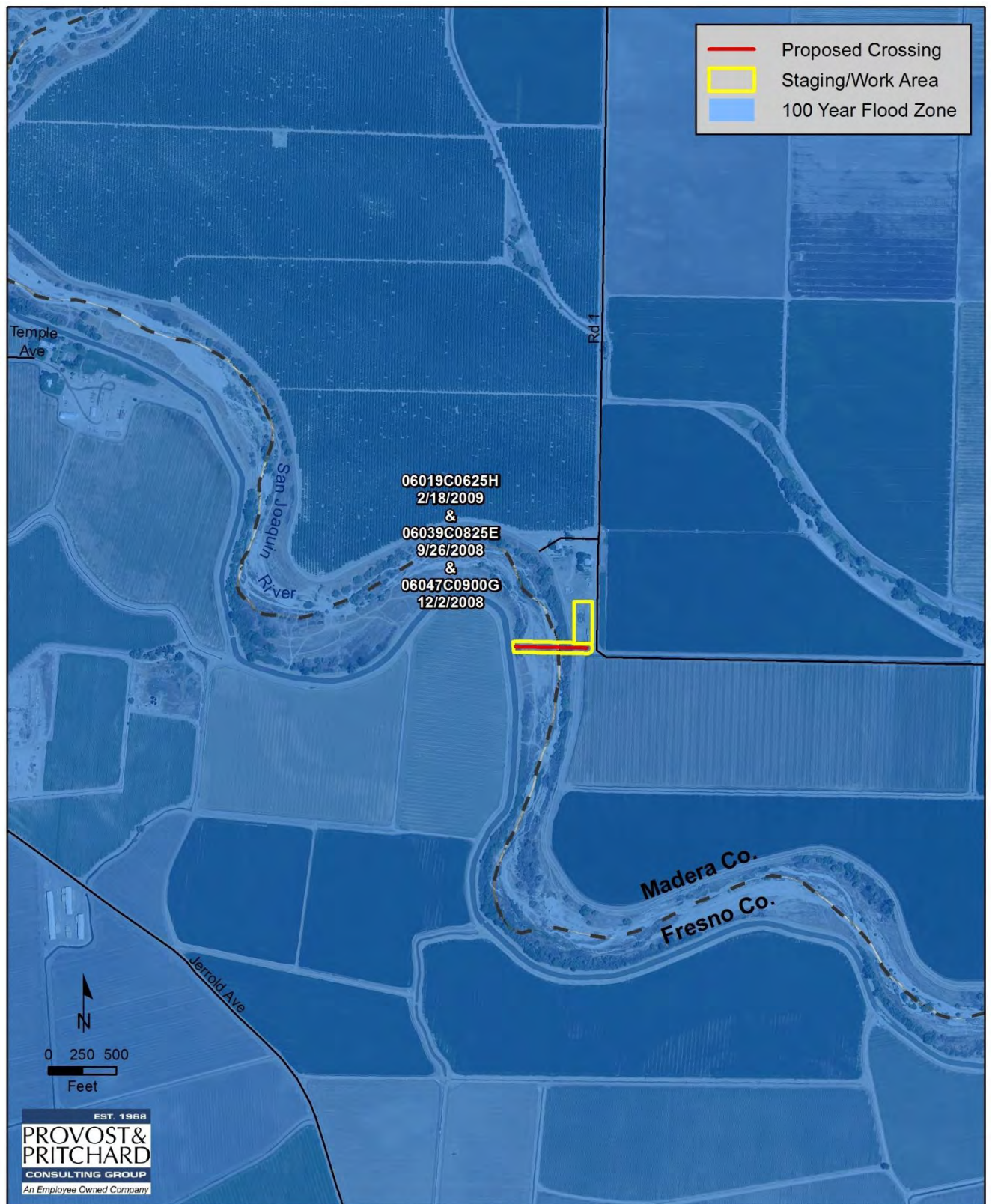
proposed Action/Project. Therefore, there would be no impact with regard to placing any new structures in flood hazard areas that are prone to flood-related events. Additionally, the new turnout and underground pipeline will not impede or redirect flood flows. Therefore, there will be no impact.

IX-i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?

No Impact. The entire proposed Action/Project site is within the dam failure inundation areas for Friant Dam and Pine Flat Dam, the turnout and pipeline portions are also within the Crane Valley Storage inundation area. However, the proposed Action/Project is a pipeline infrastructure project with the goal of improving surface water supplies to the Red Top Area. No persons would be permanently housed on site. Therefore, no impact would occur.

IX-j) Inundation by seiche, tsunami, or mudflow?

No Impact. There are not any large bodies of water located near the project site which could result in inundation by seiche, tsunami, or mudflow. Therefore, no impact would occur.



10/22/2015 : G:\Central California ID-3510\351014L1-Red Top Area Conveyance\GIS\Map\CEQA\FEMA.mxd

Aerial: NAIP 2014

Figure 1-2 FEMA Map

1.10 Land Use and Planning

Table 1-15. Land Use and Planning

Land Use and Planning				
Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a) Physically divide an established community?	☐	☐	☐	☒
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the General Plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

1.10.1 Regulatory Setting

1.10.1.1 Federal

There are no federal or state regulations pertaining to land use and planning relevant to the proposed Action/Project.

1.10.1.2 State

This proposed Action/Project is being evaluated pursuant to CEQA; however, there are no state regulations, plans, programs, or guidelines associated with land use and planning that are applicable.

1.10.2 Impact Assessment

X-a) Would the project physically divide an established community?

No Impact. The proposed Action/Project includes the construction of a new turnout and underground pipeline. The proposed Action/Project would not include any elements that would potentially divide any established community. There would be no impact.

X-b) Would the project conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the General Plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

No Impact: The proposed Action/Project area is located within unincorporated Fresno and Madera County. The Fresno County General Plan designates the lands in the proposed Action/Project area as Agriculture. The Fresno County Zoning Ordinance identifies the zoning of the lands included in the proposed Action/Project as AE20: Exclusive Agriculture 20 acre. The Madera County General Plan designates the lands in the proposed Action/Project area as Agriculture Exclusive. The Madera County Zoning Ordinance identifies the zoning of the lands included in the proposed Action/Project as ARE-40: Ag, rural, exclusive, 40 acre.

The proposed Action/Project's infrastructure, including a new turnout and underground pipelines are consistent the General Plan designations and zoning for Madera and Fresno County found within proposed Action/Project area. The proposed Action/Project would not conflict with any applicable land use plans, policies, or regulations of an agency with jurisdiction over the Project. There is no impact.

X-c) Would the project conflict with any applicable habitat conservation plan or natural community conservation plan?

No Impact. The proposed Action/Project is designed to be consistent with policies of the County of Madera General Plan (1995) and County of Fresno General Plan (2000). This project will not be in conflict with any local policies or ordinances protecting biological resources. Therefore, there would be no impact.

1.11 Mineral Resources

Table 1-16. Mineral Resources

Mineral Resources				
Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	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?	☐	☐	☐	☒

1.11.1 Regulatory Setting

1.11.1.1 Federal

There are no federal regulations pertaining to mineral resources relevant to the proposed Action/Project.

1.11.1.2 State

California Surface Mining and Reclamation Act of 1975: Enacted by the State Legislature in 1975, the Surface Mining and Reclamation Act (SMARA), Public Resources Code Section 2710 et seq., insures a continuing supply of mineral resources for the State. The act also creates surface mining and reclamation policy to assure that:

- Production and conservation of minerals is encouraged;
- Environmental effects are prevented or minimized;
- Consideration is given to recreational activities, watersheds, wildlife, range and forage, and aesthetic enjoyment;
- Mined lands are reclaimed to a useable condition once mining is completed; and
- Hazards to public safety both now and in the future are eliminated.

Areas in the State (city or county) that do not have their own regulations for mining and reclamation activities rely on the Department of Conservation, Division of Mines and Geology, Office of Mine Reclamation to enforce this law. SMARA contains provisions for the inventory of mineral lands in the State of California. The State Geologist, in accordance with the State Board's Guidelines for Classification and Designation of Mineral Lands, must classify Mineral Resource Zones (MRZ) as designated below:

- **MRZ-1.** Areas where available geologic information indicates that there is minimal likelihood of significant resources.
- **MRZ-2.** Areas underlain by mineral deposits where geologic data indicate that significant mineral deposits are located or likely to be located.
- **MRZ-3.** Areas where mineral deposits are found but the significance of the deposits cannot be evaluated without further exploration.
- **MRZ-4.** Areas where there is not enough information to assess the zone. These are areas that have unknown mineral resource significance.

SMARA only covers mining activities that impact or disturb the surface of the land. Deep mining (tunnel) or petroleum and gas production is not covered by SMARA.

1.11.2 Impact Assessment

XI-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?

No Impact. The California Department of Conservation, Office of Mine Reclamation (OMR) provides mine information to the public through the Mines Online (MOL) website. The website is an interactive web map designed to provide information such as mine name, operation status, commodities sold, and mine locations. According to the MOL geographic information system (GIS), there are no mines in the proposed Action/Project vicinity²⁶. There are two oil wells within a half mile of the proposed Action/Project; however, they were abandoned in 1993, and 1997. Additionally the new turnout and pipeline will not interfere with the production of the oil wells. The proposed Action/Project will not result in the loss of an available known mineral resource that would be of value to residents of the region or state. There will be no impact.

XI-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?

No Impact. The project site is not delineated as a locally important mineral resource recovery site. Therefore, implementation of the proposed Action/Project would not result in the loss of availability of any mineral resources. There would be no impact.

²⁶ State of California, Department of Conservation, <http://maps.conservation.ca.gov/mol/mol-app.html> Accessed October 2015.

1.12 Noise

Table 1-17. Noise

Noise				
Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
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 expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

1.12.1 Regulatory Setting

1.12.1.1 Federal

Federal Vibration Policies: The Federal Railway Administration (FRA) and the Federal Transit Administration (FTA) have published guidance relative to vibration impacts. According to the FRA, fragile buildings can be exposed to ground-borne vibration levels of 90 VdB without experiencing structural damage²⁷. The FTA has identified the human annoyance response to vibration levels as 75 VdB.²⁸

1.12.1.2 State

The California Noise Control Act was enacted in 1973 (Health and Safety Code § 46010 *et seq.*), and states that the Office of Noise Control (ONC) should provide assistance to local communities in developing local noise control programs. It also indicates that ONC staff would work with the OPR to provide guidance for the preparation of the required noise elements in city and county General Plans, pursuant to Government Code § 65302(f). California Government Code § 65302(f) requires city and county general plans to include a

²⁷ Federal Railway Administration, High-Speed Ground Transportation Noise and Vibration Impact Assessment, September 2012.

²⁸ Federal Transit Administration, Transit Noise and Vibration Impact Assessment, May 2006.

noise element. The purpose of a noise element is to guide future development to enhance future land use compatibility.

1.12.1.3 Local

Madera County General Plan – Adopted October 24, 1995: The County of Madera General Plan sets forth goals and policies for noise within the County. However, none of the existing goals and policies are applicable to the proposed Action/Project.

2000 Fresno County General Plan: The Fresno County General Plan Noise Element has the following policies related to noise:

Policy HS-G.1 The County shall require that all proposed development incorporate design elements necessary to minimize adverse noise impacts on surrounding land uses.

Policy HS-G.6 The County shall regulate construction-related noise to reduce impacts on adjacent uses in accordance with the County's Noise Control Ordinance.

Policy HS-G.8 The County shall evaluate the compatibility of Proposed Action/Projects with existing and future noise levels through a comparison to Chart HS-1, “Land Use Compatibility for Community Noise Environments.”

The proposed Action/Project site is currently surrounded by rural residential neighborhoods and an agriculture field. Noise levels around the proposed Action/Project area are therefore associated with farm equipment and associated activities, as well as rural traffic noise. While much of unincorporated Fresno County is composed of discrete small communities and remote rural residences, the primary source of noise generation comes from SR99 and SR41, as well as other state highways, several airports, and industrial facilities²⁹. Maximum noise levels generated by farm-related tractors typically range from 77 to 85 dB at a distance of 50 feet from the tractor, depending on the horsepower of the tractor and the operating conditions. Due to the seasonal nature of the agricultural industry, there are often extended periods of time when no noise is generated at the proposed Action/Project site, followed by short-term periods of intensive mechanical equipment usage and corresponding noise generation. The Fresno County General Plan Background Report (2000) identifies the normally acceptable noise range for agricultural land uses between 50 to 75 dB. **Table 1-18** is included in the Fresno County General Plan (2000) for “Land Use Compatibility for Community Noise Environments”³⁰.

²⁹ Ibid. page 10-24.

³⁰ Fresno County General Plan (2000): Part 2 Goals and Policies, page 2-172.

Table 1-18 Land Use Compatibility for Community Noise Environments³¹

Land Use Category	Community Noise Exposure (Outdoor) Ldn or CNEL, dB							
	50	55	60	65	70	75	80	85
Residential: Low-Density Single-Family, Duplex, Mobile Homes								
Residential: Multiple Family								
Transient Lodging: Motels, Hotels								
Schools, Libraries, Churches, Hospitals, Nursing Homes								
Auditoriums, Concert Halls, Amphitheaters								
Sports Arena, Outdoor Spectator Sports								
Playgrounds, Neighborhood Parks								
Golf Courses, Riding Stables, Water Recreation, Cemeteries								
Office Buildings, Business Commercial and Professional								
Industrial, Manufacturing, Utilities, Agriculture								
Normally Acceptable Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements. Conditionally Acceptable New construction or development should be undertaken only after a detailed analysis of the noise reduction requirement is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice. Generally Unacceptable New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design. Land Use Discouraged New construction or development should generally not be undertaken.								

³¹ Fresno County General Plan (2000): Part 2 Goals and Policies, page 2-172.

1.12.2 Impact Assessment

XII-a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Less than Significant Impact. The proposed Action/Project will involve temporary noise sources associated with general construction activity. Typical construction equipment will include scrapers, excavators, front-end loader, a back hoe, a compactor, a crane, a water truck for dust control, an earthmover and miscellaneous equipment (i.e. pneumatic tools, generators and portable air compressors). During the proposed Action/Project's construction, noise from temporary construction activities will contribute to the noise environment in the immediate proposed Action/Project's vicinity. Activities involved in construction will generate maximum noise levels, as indicated in Table below, ranging from 79 to 91 dBA at a distance of 50 feet, without feasible noise control (e.g., mufflers) and ranging from 75 to 80 dBA at a distance of 50 feet, with feasible noise control.

Table 1-19. Typical Construction Noise Levels

Typical Construction Noise Levels ³²		
Type of Equipment	dBA at 50 ft	
	Without Feasible Noise Control	With Feasible Noise Control ¹
Dozer or Tractor	80	75
Excavator	88	80
Scraper	88	80
Front End Loader	79	75
Backhoe	85	75
Grader	85	75
Truck	91	75

Source: US Environmental Protection Agency 1971

¹ Feasible noise control includes the use of intake mufflers, exhaust mufflers and engine shrouds operating in accordance with manufacturers specifications.

The noise levels of construction equipment in **Table 1-19** above are at a distance of 50 feet from the listed equipment. According to the Federal Transit Administration, the noise decibel is reduced on average by 5 decibels for every additional 50 feet, for example the truck at 75 decibels would be heard at approximately 65 decibels at the nearest residence (50 feet from the proposed location of the underground pipelines along Russell Street and Buena Vista Road), due to noise divergence, absorption, diffusion and shielding³³.

Typical construction noise levels shown in **Error! Reference source not found.** above are comparable to noise measurements for various agricultural equipment and therefore are not expected to increase existing noise levels in the area. Additionally, these activities would be restricted to daytime hours and would be short-term in nature. It is anticipated that all related construction activities and Project operations will comply with the standards set forth by the Noise Standards in the Fresno and Madera County General Plans.

Contractor adherence to the General Plan policies and adopted noise standards would ensure that any potential impacts related to noise levels would remain less than significant.

³² US Environmental Protection Agency 1971

³³ FTA Noise and Vibration Manual. Page 2-10.

XII-b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

Less than Significant Impact. Vibration is the periodic oscillation of a medium or object. Vibration sources may be continuous, such as factory machinery, or transient, such as explosions. As is the case with airborne sound, ground borne vibrations may be described by amplitude and frequency. Vibration amplitudes are usually expressed in peak particle velocity (PPV) or root mean squared (RMS), as in RMS vibration velocity. The PPV and RMS (VbA) vibration velocity are normally described in inches per second (in/sec). PPV is defined as the maximum instantaneous positive or negative peak of a vibration signal and is often used in monitoring of blasting vibration because it is related to the stresses that are experienced by buildings³⁴.

Although PPV is appropriate for evaluating the potential for building damage, it is not always suitable for evaluating human response. As it takes some time for the human body to respond to vibration signals, it is more prudent to use vibration velocity when measuring human response. The typical background vibration-velocity level in residential areas is approximately 50 VdB. Ground borne vibration is normally perceptible to humans at approximately 65 VdB. For most people, a vibration-velocity level of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels³⁵.

Typical outdoor sources of perceptible ground borne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. Construction vibrations can be transient, random, or continuous. The approximate threshold of vibration perception is 65 VdB, while 85 VdB is the vibration acceptable only if there are an infrequent number of events per day³⁶. **Table 1-20** describes the typical construction equipment vibration levels.

Table 1-20. Typical Construction Vibration Levels

Typical Construction Vibration Levels	
Equipment	VdB at 25 ft ²
Small Bulldozer	58
Vibratory Roller	94
Jackhammer	79
Loaded Trucks	86

Source: Federal Transit Administration, Transit Noise and Vibration Impact Assessment, 2006.

Vibration from construction activities may occasionally exceed the FTA threshold for the nearest residence, approximately 50 feet from the proposed Action/Project site and will not exceed the FTA threshold for the nearest residence, approximately 230 feet from the staging area. However, vibration from construction activities would be temporary. The impact would be less than significant.

XII-c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

Less than Significant Impact. Construction related noise impacts are addressed in the analysis of Impact Assessment XII (a). Upon completion of construction activities, project operation would not generate a substantial increase in ambient noise levels. Potential noise sources resulting from implementation of the proposed Action/Project include noise associated with periodic vehicular trips for site operation and

³⁴ Federal Transit Administration, Transit Noise and Vibration Impact Assessment, 2006.

³⁵ Ibid.

³⁶ Ibid.

maintenance. Maintenance and operation activities are not expected to substantially increase ambient noise levels in the area above existing levels without the proposed Action/Project. Impact would be less than significant.

XII-d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

Less than Significant Impact. Any impacts regarding the temporary increase in ambient noise levels have been discussed in the analysis of Impact Assessment XII- a and c. The impact would be less than significant.

XII-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 expose people residing or working in the project area to excessive noise levels?

No Impact. The proposed Action/Project area is not located within an Airport Influence Area or Land Use Compatibility Plan. The nearest public Airport is the Dos Palos Municipal Airport, located approximately 6.4 miles to the southwest of the proposed Action/Project area. There are no private airports in the immediate vicinity of the proposed Action/Project. Therefore, there will be no impact.

XII-f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

No Impact. Any impacts regarding the noise levels associated with private airstrips have been discussed in the analysis of Impact Assessment XI-e. There will be no impact.

1.13 Population/Housing

Table 1-21. Population/Housing

Population and Housing				
Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a) Induce substantial 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 housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

1.13.1 Regulatory Setting

1.13.1.1 Federal

There are no federal regulations, plans, programs or guidelines associated with population or housing that are applicable to the proposed Action/Project.

1.13.1.2 State

California Housing Element Law: State law requires each city and county to adopt a general plan for future growth. This plan must include a Housing Element that identifies housing needs for all economic segments and provides opportunities for housing development to meet that need. At the State level, the California Department of Housing and Community Development estimates the relative share of California's projected population growth that could occur in each county in the State based on Department of Finance population projections and historic growth trends. Where there is a regional council of governments, as in Kern County, the California Department of Housing and Community Development provides the regional housing need to the council. The council then assigns a share of the regional housing need to each of its cities and counties. The process of assigning shares provides cities and counties the opportunity to comment on the proposed allocations.

The California Department of Housing and Community Development oversees the process to ensure that the councils of governments distribute their share of the State's projected housing need.

Each city and county must update its general plan housing element on a regular basis (typically, every five to eight years). Among other things, including incorporating policies, the housing element must identify potential sites that could accommodate the city's share of the regional housing need. Before adopting an update to its housing element, the city or county must submit a draft to the California Department of Housing and Community Development for review. The department advises the local jurisdiction as to whether its housing element complies with the provisions of California housing element law.

The councils of governments are required to assign regional housing shares to the cities and counties within their regions on a similar five-year schedule. At the beginning of each cycle, the California Department of Housing and Community Development provides population projections to the councils of governments, which then allocate shares to their cities and counties. The shares of the regional need are allocated before the end of the cycle so that the cities and counties can amend their housing elements by the deadline.

1.13.2 Impact Assessment

XIII-a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

No Impact. The proposed Action/Project would construct a new turnout and pipeline. The proposed Action/Project will provide approximately 10,000 acre-feet of water to the Red Top Area. Benefits to existing development and infrastructure and enhanced safety to vehicle and pedestrian traffic as a result of the proposed drainage improvements. No new homes, businesses or roads are planned as part of the proposed Action/Project. Construction workers will likely draw from the local and regional market. It is anticipated that periodic operations personnel would be required for site inspection, security, maintenance and system monitoring purposes. However, the proposed Action/Project does not include onsite full time staff members to operate the facility. Therefore, the proposed Action/Project would not induce population growth and there would be no impact.

XIII-b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?

No Impact. No housing or people will be displaced by implementation of the proposed Action/Project. There will be no impact.

XIII-c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

No Impact. No housing or people will be displaced by implementation of the proposed Action/Project. There will be no impact.

1.14 Public Services

Table 1-22. Public Services

Public Services				
Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
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:				
Fire protection?	☐	☐	☐	☒
Police protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

1.14.1 Regulatory Setting

1.14.1.1 Federal

National Fire Protection Association: The National Fire Protection Association (NFPA) is an international nonprofit organization that provides consensus codes and standards, research, training, and education on fire prevention and public safety. The NFPA develops, publishes, and disseminates more than 300 such codes and standards intended to minimize the possibility and effects of fire and other risks. The NFPA publishes the NFPA 1, Uniform Fire Code, which provides requirements to establish a reasonable level of fire safety and property protection in new and existing buildings.

1.14.1.2 State

California Fire Code and Building Code: The 2013 California Fire Code (Title 24, Part 9 of the California Code of Regulations) establishes regulations to safeguard against hazards of fire, explosion, or dangerous conditions in new and existing buildings, structures, and premises. The Fire Code also establishes requirements intended to provide safety and assistance to fire fighters and emergency responders during emergency operations. The provision of the Fire Code includes regulations regarding fire-resistance rated construction, fire protection systems such as alarm and sprinkler systems, fire service features such as fire apparatus access roads, fire safety during construction and demolition, and wildland urban interface areas.

Under Title 14 of the California Code of Regulations, the California Department of Forestry and Fire Protection (CAL FIRE) has the primary responsibility for fire protection in the 31 million acres of State Responsibility Area in California. In Kern County, SRA fire protection is contracted out by CAL FIRE to KCFD. CAL FIRE provides funding to Kern County for fire protection services, including wages of

suppression crews, lookouts, maintenance of fire fighting facilities, fire prevention assistants, pre-fire management positions, dispatch, special repairs, and administrative services. CAL FIRE's budget also provides for infrastructure improvements, and expanded fire fighting needs when fires grow beyond initial attack.

1.14.2 Impact Assessment

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

No Impact. The proposed Action/Project does not consist of any elements that would require the addition or alteration of any public services. There would be no impact.

- **Fire Protection** – The Merced County Fire Station 76 would continue to provide fire protection services to the lands surrounding the proposed Action/Project during construction. There would be no impact.
- **Police Protection** – Police protection services would continue to be provided by the Madera and Fresno County Sheriff Departments to the project site upon development. Emergency response is adequate to the proposed Action/Project site. There would be no impact.
- **Schools** – Alview Elementary School, and Bryant Middle School are located approximately 3.6 miles northeast and 5.2 miles southwest of the proposed Action/Project site, respectively. The proposed Action/Project would not result in an increase of population that would impact existing school facility service levels nor require additional need for school facilities to be expanded. There would be no impact.
- **Parks** – O'Bannion County Park, is the closest park at approximately 5.4 miles west of the proposed Action/Project site. No employees would be stationed at the project site. As the proposed Action/Project would not induce population growth, it would not create a need for additional park or recreational services. There would be no impact.
- **Other public facilities** – No power stations, water treatment plants or other public facilities are nearby. In addition, the site would not generate additional water treatment, sewer or net electricity needs. Furthermore, the proposed Action/Project would not induce population growth. As such, there would be no impact as a result of proposed Action/Project implementation.

1.15 Recreation

Table 1-23. Recreation

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

1.15.1 Regulatory Setting

1.15.1.1 Federal

There are no federal regulations, plans, programs and guidelines associated with recreation that are applicable to the proposed Action/Project.

1.15.1.2 State

There are no state regulations, plans, programs and guidelines associated with recreation that are applicable to the proposed Action/Project.

1.15.2 Impact Assessment

XV-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. As discussed in Impact XIII-a and XIV-a, the proposed Action/Project will not increase the demand for recreational facilities nor put a strain on the existing recreational facilities. The proposed Action/Project will not induce population growth or employ on-site permanent staff. Maintenance, repair, and cleaning crews will service the site on an as-needed basis. As such, the proposed Action/Project would not induce population growth which would increase the use of existing recreational facilities or cause physical deterioration to be accelerated as a result of the proposed Action/Project implementation. Therefore, there will be no impact.

XV-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 Action/Project does not include recreational facilities. There would be no population increase associated with the proposed Action/Project. There would be no impact.

1.16 Transportation/Traffic

Table 1-24. Transportation/Traffic

Transportation/Traffic				
Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☐	☒
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☐	☒
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that result in substantial safety risks?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
e) Result in inadequate emergency access?	☐	☐	☐	☒
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☐	☒

1.16.1 Regulatory Setting

1.16.1.1 Federal

Several federal regulations govern transportation issues. They include:

- Title 49, CFR, Sections 171-177 (49 CFR 171-177), governs the transportation of hazardous materials, the types of materials defined as hazardous, and the marking of the transportation vehicles.
- 49 CFR 350-399, and Appendices A-G, Federal Motor Carrier Safety Regulations, address safety considerations for the transport of goods, materials, and substances over public highways.
- 49 CFR 397.9, the Hazardous Materials Transportation Act of 1974, directs the U.S. Department of Transportation to establish criteria and regulations for the safe transportation of hazardous materials.

Federal Aviation Administration: The Federal Aviation Administration (FAA) regulates aviation at regional, public, and private airports. The FAA regulates objects affecting navigable airspace.

1.16.1.2 State

This proposed Action/Project is being evaluated pursuant to CEQA; however, there are no state regulations, plans, programs, and guidelines associated with transportation and traffic that are applicable to the proposed Action/Project.

1.16.2 Impact Assessment

XVI-a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?

No Impact. The proposed Action/Project does not require construction of any new road ways. With the exception of occasional maintenance vehicle trips, the proposed Action/Project would not contribute to any additional traffic once construction was completed. Typical construction traffic would be temporary in nature and is expected to be complete within an eight month period. Therefore, the Proposed Project would not impact a circulation plan.

XVI-b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?

No Impact. The proposed Action/Project does not require the construction of any roadways, and would generate approximately 11 round trips per day on average during the construction process. As the proposed Action/Project would not generate significant new permanent traffic, and based on existing conditions, there is expected to be no impact to the level of service of surrounding roadways.

XVI-c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that result in substantial safety risks?

No Impact. The installation of the new turnout and underground pipeline would not cause an increase in air traffic levels or cause a change in air traffic location. There would be no impact.

XVI-d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

No Impact. The proposed Action/Project does not include any modifications to the design of existing roadways.. There would be no impact.

XVI-e) Result in inadequate emergency access?

No Impact. No roads would be modified as a result of this proposed Action/Project. Emergency access would remain the same as currently exists; therefore, there would be no impact to any emergency access.

XVI-f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?

No Impact. As the proposed Action/Project would not permanently alter any roadways or construct new roads or generate significant new traffic for the operation and maintenance of the storm drainage facilities,

the proposed Action/Project would not interfere with any adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities. There would be no impact.

1.17 Utilities and Service Systems

Table 1-25. Utilities and Service Systems

Utilities and Service Systems				
Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☒
e) 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?	☐	☐	☐	☒
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒

1.17.1 Regulatory Setting

1.17.1.1 Federal

National Pollutant Discharge Elimination System: Discharge of treated wastewater to surface water(s) of the U.S., including wetlands, requires an NPDES permit. In California, the RWQCB administers the issuance of these federal permits.

Obtaining a NPDES permit requires preparation of detailed information, including characterization of wastewater sources, treatment processes, and effluent quality. Any future development that exceeds one acre in size would be required to comply with NPDES criteria, including preparation of a Storm water Pollution Prevention Plan (SWPPP) and the inclusion of BMPs to control erosion and offsite transport of soils.

1.17.1.2 State

State Water Resources Control Board (SWRCB):

- **Waste Discharge Requirements Program.** State regulations pertaining to the treatment, storage, processing, or disposal of solid waste are found in Title 27, CCR, Section 20005 et seq. (hereafter Title 27). In general, the Waste Discharge Requirements (WDRs) Program (sometimes also referred to as the “Non Chapter 15 (Non 15) Program”) regulates point discharges that are exempt pursuant to Subsection 20090 of Title 27 and not subject to the Federal Water Pollution Control Act. Exemptions from Title 27 may be granted for nine categories of discharges (e.g., sewage, wastewater, etc.) that meet, and continue to meet, the preconditions listed for each specific exemption. The scope of the WDRs Program also includes the discharge of wastes classified as inert, pursuant to Section 20230 of Title 27³⁷. Several programs are administered under the WDR Program, including the Sanitary Sewer Order and recycled water programs.

Department of Resources Recycling and Recovery (CalRecycle): The Department of Resources Recycling and Recovery (CalRecycle) is the State agency designated to oversee, manage, and track the 76 million tons of waste generated each year in California. CalRecycle develops laws and regulations to control and manage waste, for which enforcement authority is typically delegated to the local government. The board works jointly with local government to implement regulations and fund programs.

The Integrated Waste Management Act of 1989 (PRC 40050 et seq. or Assembly Bill (AB 939, codified in PRC 40000), administered by CalRecycle, requires all local and county governments to adopt a Source Reduction and Recycling Element to identify means of reducing the amount of solid waste sent to landfills. This law set reduction targets at 25 percent by the year 1995 and 50 percent by the year 2000. To assist local jurisdictions in achieving these targets, the California Solid Waste Reuse and Recycling Access Act of 1991 requires all new developments to include adequate, accessible, and convenient areas for collecting and loading recyclable and green waste materials.

Regional Water Quality Control Boards: The primary responsibility for the protection of water quality in California rests with the State Water Resources Control Board (State Board) and nine Regional Water Quality Control Boards. The State Board sets statewide policy for the implementation of state and federal laws and regulations. The Regional Boards adopt and implement Water Quality Control Plans (Basin Plans) which recognize regional differences in natural water quality, actual and potential beneficial uses, and water quality problems associated with human activities.

- **National Pollutant Discharge Elimination System (NPDES) Permit.** As authorized by the Clean Water Act (CWA), the National Pollutant Discharge Elimination System (NPDES) Permit Program controls water pollution by regulating point sources that discharge pollutants into water of the United States. In California, it is the responsibility of Regional Water Quality Control Boards (RWQCB) to preserve and enhance the quality of the state’s waters through the development of water quality control plans and the issuance of waste discharge requirements (WDRs). WDRs for discharges to surface waters also serve as NPDES permits³⁸

California Department of Water Resources: The California Department of Water Resources (DWR) is a department within the California Resources Agency. The DWR is responsible for the State of California's management and regulation of water usage.

³⁷ California State Water Resources Control Board. Land Disposal Program, General Information, Waste Discharge Requirements Program. Site Available: http://www.swrcb.ca.gov/water_issues/programs/land_disposal/waste_discharge_requirements.shtml

³⁸ California State Water Resources Control Board. National Pollutant Discharge Elimination System (NPDES). Site Available: http://www.waterboards.ca.gov/water_issues/programs/npdes/.

1.17.2 Impact Assessment

XVII-a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

No Impact. The proposed Action/Project does not include any elements that would generate waste water. The proposed Action/Project may utilize portable restrooms during construction activities at staging areas for workers. However, waste would be disposed of in accordance with local, state and federal laws. Operation of the proposed Action/Project would not generate any waste water. There would be no impact.

XVII-b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

No Impact. As discussed in Impact IX-a, IX-b and Impact XVII-a, the proposed Action/Project's operation would not generate wastewater. No new facilities or the expansion of existing water or wastewater treatment facilities would be needed. As such, there will be no impact.

XVII-c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

No Impact. The proposed Action/Project includes the construction of a new turnout and an underground pipeline. No new storm water drainage facilities would be needed nor would the expansion of an existing facility be required. Therefore, there will be no impact.

XVII-d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

No Impact. The proposed Action/Project will be served from the District's existing water supply contracts. Therefore, the proposed Action/Project would not result in the need for new or expanded entitlements. There would be no impact.

XVII -e) 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. As discussed in Impact Assessment XVII-a, the proposed Action/Project would not generate wastewater. There would be no impact.

XVII-f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

Less Than Significant Impact. The proposed Action/Project is a surface water related infrastructure project. Operation of the proposed Action/Project would not generate any solid waste. Any waste generated would be during construction is required to be disposed of in accordance with local, state, and federal laws. Any impact on a landfill will be less than significant.

XVII-g) Comply with federal, state, and local statutes and regulations related to solid waste?

No Impact. The proposed Action/Project will comply with any federal, state, and local regulations. There is no impact.

1.18 Mandatory Findings of Significance

Table 1-26. Mandatory Findings of Significance

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

1.18.1 Impact Assessment

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

Less Than Significant Impact with Mitigation Incorporation. Based on the analysis conducted in this Initial Study, impacts to Aesthetics, Agriculture and Forestry Resources, Air Quality, Geology/Soils, Greenhouse Gas Emissions, Hazards and Hazardous Materials, Hydrology/Water Quality, Land Use and Planning, Mineral Resources, Population/Housing, Public Services, Recreation, Transportation/Traffic, and Utility/Services Systems would be less than significant. Potential impacts to Biological Resources and Cultural Resources would be less than significant with implementation of mitigation measures Biological – 1 through 5, and Cultural – 1 through 3. Therefore, the proposed Action/Project's potential to degrade the quality of the environment, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a protected species, or eliminate important examples of the major periods of California history or prehistory would be less than significant with implementation of the above noted mitigation measures.

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

Less Than Significant Impact with Mitigation Incorporation. Cumulatively considerable means that “the incremental effects of an individual 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.” The District is not actively pursuing any projects of similar nature at this time. Additionally, proposed mitigation measures Biological – 1 through 5, and Cultural – 1 through 3 will ensure that the proposed Action/Project does not result in significant impacts. As mitigated, the proposed Action/Project will not have impacts that are cumulatively considerable.

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

Less Than Significant Impact. Based on the analysis, the proposed Action/Project would not result in substantial adverse effects on human beings, either directly or indirectly. Mitigation measures are provided in sections Air Quality, and Cultural Resources of this environmental document. The implementation of the identified mitigation measures would reduce the proposed Action/Project’s potential environmental effects on the public and the environment to less than significant levels. No additional mitigation measures will be required. Additionally, the proposed Action/Project will serve to reduce subsidence in the Red Top Area. Therefore, less than significant impacts would occur.

Red Top Conveyance Project
San Joaquin Valley Unified APCD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	1.98	Acre	1.98	86,248.80	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.7	Precipitation Freq (Days)	45
Climate Zone	3			Operational Year	2016
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	641.35	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - The proposed turnout, pipeline and staging area will be 1.98 acres.

Construction Phase - Construction will take place over 40 working days.

Off-road Equipment - Based on the equipment list.

Off-road Equipment - Based on the equipment list.

Trips and VMT - There will be 11 round trips per day (22 trips).

Vehicle Trips -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	200.00	5.00
tblConstructionPhase	NumDays	4.00	30.00

tblConstructionPhase	NumDays	2.00	5.00
tblGrading	AcresOfGrading	11.25	1.50
tblGrading	AcresOfGrading	2.50	1.00
tblGrading	PhaseName	Grading	Installation of Project
tblOffRoadEquipment	HorsePower	89.00	46.00
tblOffRoadEquipment	HorsePower	84.00	89.00
tblOffRoadEquipment	LoadFactor	0.20	0.45
tblOffRoadEquipment	LoadFactor	0.74	0.20
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	4.00
tblOffRoadEquipment	PhaseName	Building Construction	Site Clean-up
tblOffRoadEquipment	PhaseName	Building Construction	Site Clean-up
tblOffRoadEquipment	PhaseName	Building Construction	Site Clean-up

tblOffRoadEquipment	PhaseName	Grading	Installation of Project
tblOffRoadEquipment	PhaseName	Building Construction	Site Clean-up
tblOffRoadEquipment	PhaseName	Grading	Installation of Project
tblOffRoadEquipment	PhaseName	Grading	Installation of Project
tblOffRoadEquipment	PhaseName	Building Construction	Site Clean-up
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Installation of Project
tblOffRoadEquipment	PhaseName		Installation of Project
tblOffRoadEquipment	PhaseName		Installation of Project
tblOffRoadEquipment	PhaseName		Installation of Project
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOnRoadDust	PhaseName	Grading	Installation of Project
tblOnRoadDust	PhaseName	Building Construction	Site Clean-up
tblProjectCharacteristics	OperationalYear	2014	2016
tblTripsAndVMT	PhaseName	Grading	Installation of Project
tblTripsAndVMT	PhaseName	Building Construction	Site Clean-up
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	14.00	2.00
tblTripsAndVMT	WorkerTripNumber	8.00	20.00
tblTripsAndVMT	WorkerTripNumber	8.00	20.00
tblTripsAndVMT	WorkerTripNumber	36.00	20.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2016	0.0739	0.6236	0.4836	6.3000e-004	0.0857	0.0409	0.1266	0.0456	0.0383	0.0839	0.0000	57.1776	57.1776	0.0134	0.0000	57.4580
Total	0.0739	0.6236	0.4836	6.3000e-004	0.0857	0.0409	0.1266	0.0456	0.0383	0.0839	0.0000	57.1776	57.1776	0.0134	0.0000	57.4580

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2016	0.0738	0.5165	0.4831	6.3000e-004	0.0857	0.0409	0.1266	0.0456	0.0383	0.0838	0.0000	57.1140	57.1140	0.0133	0.0000	57.3941
Total	0.0738	0.5165	0.4831	6.3000e-004	0.0857	0.0409	0.1266	0.0456	0.0383	0.0838	0.0000	57.1140	57.1140	0.0133	0.0000	57.3941

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.1083	17.1817	0.1137	0.0000	0.0000	0.1221	0.0395	0.0000	0.1304	0.0596	0.0000	0.1112	0.1112	0.0749	0.0000	0.1112

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3968	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.0000e-005	4.0000e-005	0.0000	0.0000	4.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.3968	0.0000	2.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	4.0000e-005	4.0000e-005	0.0000	0.0000	4.0000e-005

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3968	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.0000e-005	4.0000e-005	0.0000	0.0000	4.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.3968	0.0000	2.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	4.0000e-005	4.0000e-005	0.0000	0.0000	4.0000e-005

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/29/2016	2/4/2016	5	5	
2	Installation of Project	Grading	2/5/2016	3/17/2016	5	30	
3	Site Clean-up	Building Construction	3/18/2016	3/24/2016	5	5	

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rollers	2	8.00	80	0.38
Site Preparation	Generator Sets	1	8.00	84	0.74
Installation of Project	Rollers	1	8.00	80	0.38
Site Clean-up	Generator Sets	2	8.00	84	0.74
Site Clean-up	Cranes	0	6.00	226	0.29
Site Clean-up	Forklifts	1	6.00	89	0.20
Site Preparation	Graders	1	8.00	174	0.41
Installation of Project	Skid Steer Loaders	2	8.00	64	0.37
Installation of Project	Forklifts	2	8.00	89	0.20
Installation of Project	Generator Sets	4	8.00	89	0.20
Installation of Project	Rubber Tired Dozers	1	6.00	255	0.40
Site Clean-up	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Installation of Project	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Installation of Project	Graders	0	6.00	174	0.41
Site Preparation	Rubber Tired Dozers	0	7.00	255	0.40
Site Clean-up	Forklifts	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	3	20.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Installation of Project	3	20.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Clean-up	7	20.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2016**Unmitigated Construction On-Site****Acres of Grading: 1**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0137	0.0000	0.0137	7.3000e-003	0.0000	7.3000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.6800e-003	0.0617	0.0379	5.0000e-005		4.0800e-003	4.0800e-003		3.8200e-003	3.8200e-003	0.0000	4.8559	4.8559	1.1700e-003	0.0000	4.8804
Total	6.6800e-003	0.0617	0.0379	5.0000e-005	0.0137	4.0800e-003	0.0178	7.3000e-003	3.8200e-003	0.0111	0.0000	4.8559	4.8559	1.1700e-003	0.0000	4.8804

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.3000e-004	5.0000e-004	8.0000e-004	0.0000	3.0000e-005	1.0000e-005	4.0000e-005	1.0000e-005	1.0000e-005	2.0000e-005	0.0000	0.1079	0.1079	0.0000	0.0000	0.1079
Worker	8.2000e-004	2.4000e-004	2.3700e-003	0.0000	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3583	0.3583	2.0000e-005	0.0000	0.3587
Total	9.5000e-004	7.4000e-004	3.1700e-003	0.0000	4.3000e-004	1.0000e-005	4.4000e-004	1.2000e-004	1.0000e-005	1.3000e-004	0.0000	0.4661	0.4661	2.0000e-005	0.0000	0.4666

3.2 Site Preparation - 2016**Mitigated Construction On-Site****Acres of Grading: 1**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0137	0.0000	0.0137	7.3000e-003	0.0000	7.3000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.6700e-003	0.0461	0.0379	5.0000e-005		4.0700e-003	4.0700e-003		3.8100e-003	3.8100e-003	0.0000	4.8501	4.8501	1.1700e-003	0.0000	4.8746
Total	6.6700e-003	0.0461	0.0379	5.0000e-005	0.0137	4.0700e-003	0.0178	7.3000e-003	3.8100e-003	0.0111	0.0000	4.8501	4.8501	1.1700e-003	0.0000	4.8746

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.3000e-004	5.0000e-004	8.0000e-004	0.0000	3.0000e-005	1.0000e-005	4.0000e-005	1.0000e-005	1.0000e-005	2.0000e-005	0.0000	0.1079	0.1079	0.0000	0.0000	0.1079
Worker	8.2000e-004	2.4000e-004	2.3700e-003	0.0000	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3583	0.3583	2.0000e-005	0.0000	0.3587
Total	9.5000e-004	7.4000e-004	3.1700e-003	0.0000	4.3000e-004	1.0000e-005	4.4000e-004	1.2000e-004	1.0000e-005	1.3000e-004	0.0000	0.4661	0.4661	2.0000e-005	0.0000	0.4666

3.3 Installation of Project - 2016**Unmitigated Construction On-Site****Acres of Grading: 0**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0685	0.0000	0.0685	0.0373	0.0000	0.0373	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0536	0.5169	0.3881	4.8000e-004		0.0338	0.0338		0.0315	0.0315	0.0000	44.4797	44.4797	0.0114	0.0000	44.7186
Total	0.0536	0.5169	0.3881	4.8000e-004	0.0685	0.0338	0.1023	0.0373	0.0315	0.0689	0.0000	44.4797	44.4797	0.0114	0.0000	44.7186

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.1000e-004	3.0100e-003	4.8000e-003	1.0000e-005	2.0000e-004	5.0000e-005	2.5000e-004	6.0000e-005	5.0000e-005	1.0000e-004	0.0000	0.6471	0.6471	1.0000e-005	0.0000	0.6472
Worker	4.9300e-003	1.4400e-003	0.0142	3.0000e-005	2.4000e-003	2.0000e-005	2.4200e-003	6.4000e-004	2.0000e-005	6.5000e-004	0.0000	2.1496	2.1496	1.2000e-004	0.0000	2.1521
Total	5.7400e-003	4.4500e-003	0.0190	4.0000e-005	2.6000e-003	7.0000e-005	2.6700e-003	7.0000e-004	7.0000e-005	7.5000e-004	0.0000	2.7967	2.7967	1.3000e-004	0.0000	2.7993

3.3 Installation of Project - 2016**Mitigated Construction On-Site****Acres of Grading: 0**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0685	0.0000	0.0685	0.0373	0.0000	0.0373	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0535	0.4254	0.3876	4.8000e-004		0.0337	0.0337		0.0315	0.0315	0.0000	44.4268	44.4268	0.0114	0.0000	44.6654
Total	0.0535	0.4254	0.3876	4.8000e-004	0.0685	0.0337	0.1023	0.0373	0.0315	0.0688	0.0000	44.4268	44.4268	0.0114	0.0000	44.6654

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.1000e-004	3.0100e-003	4.8000e-003	1.0000e-005	2.0000e-004	5.0000e-005	2.5000e-004	6.0000e-005	5.0000e-005	1.0000e-004	0.0000	0.6471	0.6471	1.0000e-005	0.0000	0.6472
Worker	4.9300e-003	1.4400e-003	0.0142	3.0000e-005	2.4000e-003	2.0000e-005	2.4200e-003	6.4000e-004	2.0000e-005	6.5000e-004	0.0000	2.1496	2.1496	1.2000e-004	0.0000	2.1521
Total	5.7400e-003	4.4500e-003	0.0190	4.0000e-005	2.6000e-003	7.0000e-005	2.6700e-003	7.0000e-004	7.0000e-005	7.5000e-004	0.0000	2.7967	2.7967	1.3000e-004	0.0000	2.7993

3.4 Site Clean-up - 2016**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.9600e-003	0.0391	0.0322	5.0000e-005		3.0000e-003	3.0000e-003		2.9000e-003	2.9000e-003	0.0000	4.1131	4.1131	6.5000e-004	0.0000	4.1267
Total	5.9600e-003	0.0391	0.0322	5.0000e-005		3.0000e-003	3.0000e-003		2.9000e-003	2.9000e-003	0.0000	4.1131	4.1131	6.5000e-004	0.0000	4.1267

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.3000e-004	5.0000e-004	8.0000e-004	0.0000	3.0000e-005	1.0000e-005	4.0000e-005	1.0000e-005	1.0000e-005	2.0000e-005	0.0000	0.1079	0.1079	0.0000	0.0000	0.1079
Worker	8.2000e-004	2.4000e-004	2.3700e-003	0.0000	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3583	0.3583	2.0000e-005	0.0000	0.3587
Total	9.5000e-004	7.4000e-004	3.1700e-003	0.0000	4.3000e-004	1.0000e-005	4.4000e-004	1.2000e-004	1.0000e-005	1.3000e-004	0.0000	0.4661	0.4661	2.0000e-005	0.0000	0.4666

3.4 Site Clean-up - 2016

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.9500e-003	0.0391	0.0322	5.0000e-005		3.0000e-003	3.0000e-003		2.8900e-003	2.8900e-003	0.0000	4.1082	4.1082	6.5000e-004	0.0000	4.1218
Total	5.9500e-003	0.0391	0.0322	5.0000e-005		3.0000e-003	3.0000e-003		2.8900e-003	2.8900e-003	0.0000	4.1082	4.1082	6.5000e-004	0.0000	4.1218

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.3000e-004	5.0000e-004	8.0000e-004	0.0000	3.0000e-005	1.0000e-005	4.0000e-005	1.0000e-005	1.0000e-005	2.0000e-005	0.0000	0.1079	0.1079	0.0000	0.0000	0.1079
Worker	8.2000e-004	2.4000e-004	2.3700e-003	0.0000	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3583	0.3583	2.0000e-005	0.0000	0.3587
Total	9.5000e-004	7.4000e-004	3.1700e-003	0.0000	4.3000e-004	1.0000e-005	4.4000e-004	1.2000e-004	1.0000e-005	1.3000e-004	0.0000	0.4661	0.4661	2.0000e-005	0.0000	0.4666

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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

4.2 Trip Summary Information

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

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.413014	0.062673	0.156172	0.176687	0.051255	0.007895	0.018867	0.100331	0.001803	0.001598	0.006448	0.000946	0.002310

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

[illegible]

5.2 Energy by Land Use - NaturalGas

Unmitigated

[illegible]

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.3 Energy by Land Use - Electricity

Unmitigated

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

5.3 Energy by Land Use - Electricity

Mitigated

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

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.3968	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.0000e-005	4.0000e-005	0.0000	0.0000	4.0000e-005
Unmitigated	0.3968	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.0000e-005	4.0000e-005	0.0000	0.0000	4.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0600					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3368					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.0000e-005	4.0000e-005	0.0000	0.0000	4.0000e-005
Total	0.3968	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.0000e-005	4.0000e-005	0.0000	0.0000	4.0000e-005

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0600					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3368					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.0000e-005	4.0000e-005	0.0000	0.0000	4.0000e-005
Total	0.3968	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.0000e-005	4.0000e-005	0.0000	0.0000	4.0000e-005

7.0 Water Detail

7.1 Mitigation Measures Water

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

7.2 Water by Land Use

Unmitigated

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

7.2 Water by Land Use

Mitigated

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

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

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

8.2 Waste by Land Use

Unmitigated

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

Mitigated

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

9.0 Operational Offroad

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

Appendix B

USDA, Natural Resource Conservation District Soils Report



United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

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

Custom Soil Resource Report for Fresno County, California, Western Part; and Madera Area, California

Red Top Conveyance Project



October 27, 2015

Preface

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

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

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

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

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

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

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How Soil Surveys Are Made

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

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

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

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

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

individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

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

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

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

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

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

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

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

Custom Soil Resource Report Soil Map



Custom Soil Resource Report

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features

 Blowout

 Borrow Pit

 Clay Spot

 Closed Depression

 Gravel Pit

 Gravelly Spot

 Landfill

 Lava Flow

 Marsh or swamp

 Mine or Quarry

 Miscellaneous Water

 Perennial Water

 Rock Outcrop

 Saline Spot

 Sandy Spot

 Severely Eroded Spot

 Sinkhole

 Slide or Slip

 Sodic Spot

 Spoil Area

 Stony Spot

 Very Stony Spot

 Wet Spot

 Other

 Special Line Features

Water Features

 Streams and Canals

Transportation

 Rails

 Interstate Highways

 US Routes

 Major Roads

 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at scales ranging from 1:20,000 to 1:24,000.

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

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

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
Coordinate System: Web Mercator (EPSG:3857)

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

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

Soil Survey Area: Fresno County, California, Western Part
Survey Area Data: Version 10, Oct 1, 2015

Soil Survey Area: Madera Area, California
Survey Area Data: Version 9, Sep 30, 2015

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

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

Date(s) aerial images were photographed: May 12, 2010—Jun 15, 2010

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

Map Unit Legend

Fresno County, California, Western Part (CA653)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
320	Elnido sandy loam, drained, 0 to 1 percent slopes	0.6	17.4%
941	Bisgani-Elnido association, 0 to 1 percent slopes	0.7	19.8%
Subtotals for Soil Survey Area		1.3	37.2%
Totals for Area of Interest		3.4	100.0%

Madera Area, California (CA651)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
CmtA	Columbia fine sandy loam, moderately deep and deep over temple soils, 0 to 1 percent slopes	1.8	51.5%
W	Water	0.4	11.4%
Subtotals for Soil Survey Area		2.1	62.8%
Totals for Area of Interest		3.4	100.0%

Map Unit Descriptions

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

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

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

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

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

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

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

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

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

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

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

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

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

Fresno County, California, Western Part

320—Elnido sandy loam, drained, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: hnz7

Elevation: 110 to 170 feet

Mean annual precipitation: 8 to 9 inches

Mean annual air temperature: 62 to 63 degrees F

Frost-free period: 230 to 250 days

Farmland classification: Prime farmland if irrigated

Map Unit Composition

Elnido, sandy loam, drained, and similar soils: 85 percent

Minor components: 15 percent

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

Description of Elnido, Sandy Loam, Drained

Setting

Landform: Flood plains on basin floors

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Talf

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Alluvium derived from igneous rock

Typical profile

Ap - 0 to 14 inches: sandy loam

Bwg - 14 to 32 inches: sandy loam

Bkg - 32 to 40 inches: fine sandy loam

Cg1 - 40 to 53 inches: sandy loam

Cg2 - 53 to 60 inches: sand

Properties and qualities

Slope: 0 to 1 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Poorly drained

Runoff class: Negligible

Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: Rare

Frequency of ponding: None

Calcium carbonate, maximum in profile: 3 percent

Salinity, maximum in profile: Nonsaline to slightly saline (1.0 to 4.0 mmhos/cm)

Sodium adsorption ratio, maximum in profile: 20.0

Available water storage in profile: Moderate (about 6.6 inches)

Interpretive groups

Land capability classification (irrigated): 2w

Land capability classification (nonirrigated): 4w

Hydrologic Soil Group: A

Minor Components

Palazzo, sandy loam, drained

Percent of map unit: 2 percent

Landform: Flood plains on basin floors

Tachi, clay

Percent of map unit: 2 percent

Landform: Flood plains on basin floors

Wekoda, clay, partially drained

Percent of map unit: 2 percent

Landform: Flood plains on basin floors

Armona, loam, partially drained

Percent of map unit: 2 percent

Landform: Flood plains on basin floors

Bisgani, sandy loam, drained

Percent of map unit: 2 percent

Landform: Flood plains on basin floors

Bolfar, loam, drained

Percent of map unit: 2 percent

Landform: Flood plains on basin floors

Dospalos, clay loam, drained

Percent of map unit: 2 percent

Landform: Flood plains on basin floors

Unnamed, river channel

Percent of map unit: 1 percent

Landform: Flood plains

Microfeatures of landform position: Channels

941—Bisgani-Elnido association, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: hp2j

Elevation: 110 to 140 feet

Mean annual precipitation: 8 to 9 inches

Mean annual air temperature: 62 to 63 degrees F

Frost-free period: 230 to 250 days

Farmland classification: Not prime farmland

Map Unit Composition

Bisgani, loamy sand, and similar soils: 45 percent

Elnido, sandy loam, and similar soils: 40 percent

Minor components: 15 percent

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

Description of Bisgani, Loamy Sand

Setting

Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Microfeatures of landform position: Bars
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from igneous rock

Typical profile

A - 0 to 10 inches: loamy sand
Cg1 - 10 to 13 inches: loamy sand
Cg2 - 13 to 60 inches: sand

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: About 6 to 72 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Low (about 3.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D

Description of Elnido, Sandy Loam

Setting

Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Microfeatures of landform position: Channels
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from igneous rock

Typical profile

Ap - 0 to 14 inches: sandy loam
Bwg - 14 to 32 inches: sandy loam
Bkg - 32 to 40 inches: fine sandy loam
Cg1 - 40 to 53 inches: sandy loam
Cg2 - 53 to 60 inches: sand

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained

Custom Soil Resource Report

Runoff class: Negligible

Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)

Depth to water table: About 6 to 72 inches

Frequency of flooding: Frequent

Frequency of ponding: None

Calcium carbonate, maximum in profile: 3 percent

Salinity, maximum in profile: Nonsaline to slightly saline (1.0 to 4.0 mmhos/cm)

Sodium adsorption ratio, maximum in profile: 20.0

Available water storage in profile: Moderate (about 6.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4w

Hydrologic Soil Group: A/D

Minor Components

Unnamed, river channel

Percent of map unit: 6 percent

Landform: Flood plains

Microfeatures of landform position: Channels

Bisgani, sandy loam

Percent of map unit: 3 percent

Landform: Flood plains

Microfeatures of landform position: Bars

Elnido, sandy loam, dark thick surface

Percent of map unit: 2 percent

Landform: Basin floors, flood plains

Microfeatures of landform position: Channels

Bisgani, loamy sand, stratified

Percent of map unit: 2 percent

Landform: Backswamps on flood plains

Elnido, sandy loam, stratified

Percent of map unit: 2 percent

Landform: Flood plains, basin floors

Microfeatures of landform position: Channels

Madera Area, California

CmtA—Columbia fine sandy loam, moderately deep and deep over temple soils, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: hk57
Elevation: 150 feet
Mean annual precipitation: 12 to 25 inches
Mean annual air temperature: 63 degrees F
Frost-free period: 230 to 340 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

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

Description of Columbia

Setting

Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Coarse-loamy alluvium derived from igneous, metamorphic and sedimentary rock

Typical profile

H1 - 0 to 14 inches: fine sandy loam
H2 - 14 to 36 inches: fine sandy loam
H3 - 36 to 41 inches: stratified sand to silt loam
H4 - 41 to 60 inches: clay loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat poorly drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: Rare
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Moderate (about 7.3 inches)

Interpretive groups

Land capability classification (irrigated): 2w
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D

Minor Components

Temple

Percent of map unit: 10 percent

Landform: Flood plains

Riverwash

Percent of map unit: 5 percent

Landform: Channels

W—Water

Map Unit Composition

Water: 100 percent

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

Description of Water

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8

Soil Information for All Uses

Suitabilities and Limitations for Use

The Suitabilities and Limitations for Use section includes various soil interpretations displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each interpretation.

Land Classifications

Land Classifications are specified land use and management groupings that are assigned to soil areas because combinations of soil have similar behavior for specified practices. Most are based on soil properties and other factors that directly influence the specific use of the soil. Example classifications include ecological site classification, farmland classification, irrigated and nonirrigated land capability classification, and hydric rating.

California Revised Storie Index (CA) (Red Top Conveyance Project)

The Storie Index is a soil rating based on soil properties that govern a soil's potential for cultivated agriculture in California.

The Storie Index assesses the productivity of a soil from the following four characteristics: Factor A, degree of soil profile development; factor B, texture of the surface layer; factor C, slope; and factor X, manageable features, including drainage, microrelief, fertility, acidity, erosion, and salt content. A score ranging from 0 to 100 is determined for each factor, and the scores are then multiplied together to derive an index rating.

For simplification, Storie Index ratings have been combined into six grade classes as follows: Grade 1 (excellent), 81 to 100; grade 2 (good), 61 to 80; grade 3 (fair), 41 to 60; grade 4 (poor), 21 to 40; grade 5 (very poor), 11 to 20; and grade 6 (nonagricultural), 10 or less.

Custom Soil Resource Report

The components listed for each map unit in the accompanying Summary by Map Unit table in Web Soil Survey or the Aggregation Report in Soil Data Viewer are determined by the aggregation method chosen. An aggregated rating class is shown for each map unit. The components listed for each map unit are only those that have the same rating class as the one shown for the map unit. The percent composition of each component in a particular map unit is given to help the user better understand the extent to which the rating applies to the map unit.

Other components with different ratings may occur in each map unit. The ratings for all components, regardless the aggregated rating of the map unit, can be viewed by generating the equivalent report from the Soil Reports tab in Web Soil Survey or from the Soil Data Mart site. Onsite investigation may be needed to validate these interpretations and to confirm the identity of the soil on a given site.

Custom Soil Resource Report
 Map—California Revised Store Index (CA) (Red Top Conveyance Project)



Custom Soil Resource Report

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

Soil Rating Polygons

-  Grade 1 - Excellent
-  Grade 2 - Good
-  Grade 3 - Fair
-  Grade 4 - Poor
-  Grade 5 - Very Poor
-  Grade 6 - Nonagricultural
-  Not rated
-  Not rated or not available

Soil Rating Lines

-  Grade 1 - Excellent
-  Grade 2 - Good
-  Grade 3 - Fair
-  Grade 4 - Poor
-  Grade 5 - Very Poor
-  Grade 6 - Nonagricultural
-  Not rated
-  Not rated or not available

Soil Rating Points

-  Grade 1 - Excellent
-  Grade 2 - Good
-  Grade 3 - Fair
-  Grade 4 - Poor

-  Grade 5 - Very Poor
-  Grade 6 - Nonagricultural
-  Not rated
-  Not rated or not available

Water Features

 Streams and Canals

Transportation

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

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at scales ranging from 1:20,000 to 1:24,000.

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

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Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
Coordinate System: Web Mercator (EPSG:3857)

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Soil Survey Area: Fresno County, California, Western Part
Survey Area Data: Version 10, Oct 1, 2015

Soil Survey Area: Madera Area, California
Survey Area Data: Version 9, Sep 30, 2015

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

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

Date(s) aerial images were photographed: May 12, 2010—Jun 15, 2010

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

Table—California Revised Storie Index (CA) (Red Top Conveyance Project)

California Revised Storie Index (CA)— Summary by Map Unit — Fresno County, California, Western Part (CA653)					
Map unit symbol	Map unit name	Rating	Component name (percent)	Acres in AOI	Percent of AOI
320	Elnido sandy loam, drained, 0 to 1 percent slopes	Grade 1 - Excellent	Elnido, sandy loam, drained (85%)	0.6	17.4%
941	Bisgani-Elnido association, 0 to 1 percent slopes	Grade 4 - Poor	Bisgani, loamy sand (45%)	0.7	19.8%
Subtotals for Soil Survey Area				1.3	37.2%
Totals for Area of Interest				3.4	100.0%

California Revised Storie Index (CA)— Summary by Map Unit — Madera Area, California (CA651)					
Map unit symbol	Map unit name	Rating	Component name (percent)	Acres in AOI	Percent of AOI
CmtA	Columbia fine sandy loam, moderately deep and deep over temple soils, 0 to 1 percent slopes	Grade 2 - Good	Columbia (85%)	1.8	51.5%
W	Water	Not Applicable for Storie Index	Water (100%)	0.4	11.4%
Subtotals for Soil Survey Area				2.1	62.8%
Totals for Area of Interest				3.4	100.0%

Rating Options—California Revised Storie Index (CA) (Red Top Conveyance Project)*Aggregation Method:* Dominant Condition*Component Percent Cutoff:* None Specified*Tie-break Rule:* Lower**Irrigated Capability Class (Red Top Conveyance Project)**

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations that show suitability and limitations of groups of soils for rangeland, for woodland, or for engineering purposes.

Custom Soil Resource Report

In the capability system, soils are generally grouped at three levels-capability class, subclass, and unit. Only class and subclass are included in this data set.

Capability classes, the broadest groups, are designated by the numbers 1 through 8. The numbers indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class 1 soils have few limitations that restrict their use.

Class 2 soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.

Class 3 soils have severe limitations that reduce the choice of plants or that require special conservation practices, or both.

Class 4 soils have very severe limitations that reduce the choice of plants or that require very careful management, or both.

Class 5 soils are subject to little or no erosion but have other limitations, impractical to remove, that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 6 soils have severe limitations that make them generally unsuitable for cultivation and that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 7 soils have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to grazing, forestland, or wildlife habitat.

Class 8 soils and miscellaneous areas have limitations that preclude commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or esthetic purposes.

Custom Soil Resource Report

Map—Irrigated Capability Class (Red Top Conveyance Project)



Custom Soil Resource Report

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

Soil Rating Polygons

 Capability Class - I
 Capability Class - II
 Capability Class - III
 Capability Class - IV
 Capability Class - V
 Capability Class - VI
 Capability Class - VII
 Capability Class - VIII
 Not rated or not available

Soil Rating Lines

 Capability Class - I
 Capability Class - II
 Capability Class - III
 Capability Class - IV
 Capability Class - V
 Capability Class - VI
 Capability Class - VII
 Capability Class - VIII
 Not rated or not available

Soil Rating Points

 Capability Class - I
 Capability Class - II

 Capability Class - III
 Capability Class - IV
 Capability Class - V
 Capability Class - VI
 Capability Class - VII
 Capability Class - VIII
 Not rated or not available

Water Features

 Streams and Canals

Transportation

 Rails
 Interstate Highways
 US Routes
 Major Roads
 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at scales ranging from 1:20,000 to 1:24,000.

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Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
Coordinate System: Web Mercator (EPSG:3857)

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

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

Soil Survey Area: Fresno County, California, Western Part
Survey Area Data: Version 10, Oct 1, 2015

Soil Survey Area: Madera Area, California
Survey Area Data: Version 9, Sep 30, 2015

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

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

Date(s) aerial images were photographed: May 12, 2010—Jun 15, 2010

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

Table—Irrigated Capability Class (Red Top Conveyance Project)

Irrigated Capability Class— Summary by Map Unit — Fresno County, California, Western Part (CA653)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
320	Elnido sandy loam, drained, 0 to 1 percent slopes	2	0.6	17.4%
941	Bisgani-Elnido association, 0 to 1 percent slopes		0.7	19.8%
Subtotals for Soil Survey Area			1.3	37.2%
Totals for Area of Interest			3.4	100.0%

Irrigated Capability Class— Summary by Map Unit — Madera Area, California (CA651)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
CmtA	Columbia fine sandy loam, moderately deep and deep over temple soils, 0 to 1 percent slopes	2	1.8	51.5%
W	Water		0.4	11.4%
Subtotals for Soil Survey Area			2.1	62.8%
Totals for Area of Interest			3.4	100.0%

Rating Options—Irrigated Capability Class (Red Top Conveyance Project)

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Irrigated Capability Subclass (Red Top Conveyance Project)

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations that show suitability and limitations of groups of soils for rangeland, for woodland, or for engineering purposes.

Custom Soil Resource Report

In the capability system, soils are generally grouped at three levels-capability class, subclass, and unit. Only class and subclass are included in this data set.

Capability subclasses are soil groups within one capability class. They are designated by adding a small letter, "e," "w," "s," or "c," to the class numeral, for example, 2e. The letter "e" shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; "w" shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); "s" shows that the soil is limited mainly because it is shallow, droughty, or stony; and "c," used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

In class 1 there are no subclasses because the soils of this class have few limitations. Class 5 contains only the subclasses indicated by "w," "s," or "c" because the soils in class 5 are subject to little or no erosion. They have other limitations that restrict their use to pasture, rangeland, forestland, or wildlife habitat.

Custom Soil Resource Report

Map—Irrigated Capability Subclass (Red Top Conveyance Project)



MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

Soil Rating Polygons

-  Erosion
-  Soil limitation within the rooting zone
-  Excess water
-  Climate condition
-  Not rated or not available

Soil Rating Lines

-  Erosion
-  Soil limitation within the rooting zone
-  Excess water
-  Climate condition
-  Not rated or not available

Soil Rating Points

-  Erosion
-  Soil limitation within the rooting zone
-  Excess water
-  Climate condition
-  Not rated or not available

Water Features

 Streams and Canals

Transportation

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

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at scales ranging from 1:20,000 to 1:24,000.

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

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

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
Coordinate System: Web Mercator (EPSG:3857)

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

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

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Soil Survey Area: Madera Area, California
Survey Area Data: Version 9, Sep 30, 2015

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

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

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

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Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
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941	Bigani-Elnido association, 0 to 1 percent slopes		0.7	19.8%
Subtotals for Soil Survey Area			1.3	37.2%
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Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
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W	Water		0.4	11.4%
Subtotals for Soil Survey Area			2.1	62.8%
Totals for Area of Interest			3.4	100.0%

Rating Options—Irrigated Capability Subclass (Red Top Conveyance Project)

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

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Custom Soil Resource Report

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Appendix C

Wetland Delineation



LIVE OAK ASSOCIATES, INC.

an Ecological Consulting Firm

JURISDICTIONAL WATERS INVESTIGATION RED TOP CONVEYANCE PROJECT MADERA AND FRESNO COUNTIES, CALIFORNIA



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EXECUTIVE SUMMARY

Live Oak Associates, Inc. (LOA) conducted a delineation of potential waters of the United States of an approximately 2-acre site within and adjacent to the San Joaquin River in Fresno and Madera Counties, California. An approximately 82 linear foot segment of the San Joaquin River, a known Traditionally Navigable Water (TNW), was identified as a water of the U.S. within the study area. An approximately 82 linear foot segment of the Poso Canal was identified as a potential tributary water to the San Joaquin River. Waters of the U.S. generally include navigable waters, interstate drainages, impoundments of jurisdictional waters, tributaries to navigable and interstate waters, and wetlands adjacent to such waters.

LOA plant/wetland/wildlife ecologist Jeff Gurule examined the entire study area for possible waters of the U.S. and gathered vegetation, soils and hydrology data at four sampling locations within and adjacent to such waters on December 1, 2015. The San Joaquin River within ordinary high water (OHW) is considered a TNW and a Section 10 water by the U.S. Army Corps of Engineers. Areas of Poso Canal within ordinary high water (OHW) are considered potentially jurisdictional tributary waters. The Poso Canal is considered potentially jurisdictional due to the fact that it receives water from the San Joaquin River, via the Main Canal, and appears to have an outlet to the San Joaquin River downstream of the study area. Jurisdictional boundaries and potentially jurisdictional boundaries within OHW mapped during LOA's field investigation occupied approximately 8,548 square feet (0.19 acres) of the study area. Areas meeting the three technical criteria of a wetland were absent from the study area.

No other portion of the study area would be considered a water of the U.S. A large area within the San Joaquin River levees consists of an upland flood plain. The upper San Joaquin River levee banks supported riparian vegetation. All other areas of the study area did not meet any of the technical criteria of jurisdictional wetlands or contained evidence of ordinary high water.

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1.0 INTRODUCTION

Live Oak Associates, Inc. (LOA) surveyed an approximately 2-acre area with the potential to be impacted by the Red Top Conveyance Project (hereafter referred to as the study area or site) for waters of the United States and other jurisdictional waters (hereafter referred to as “jurisdictional waters”) in the fall of 2015. The site is located south of the State Route 152 crossing of the SJR immediately west of the intersection of Road 1 and the Avenue 18 ½ alignment (Figure 1). The project site is located on Assessor Parcel Numbers 020-200-001 and 001-090-03T in Section 2 of Township 11 South, Range 13 East, M. D. B. & M., on the *Santa Rita Bridge* U.S.G.S quadrangle (Figure 2).

1.1 REGULATORY DEFINITION OF WATERS OF THE U.S.

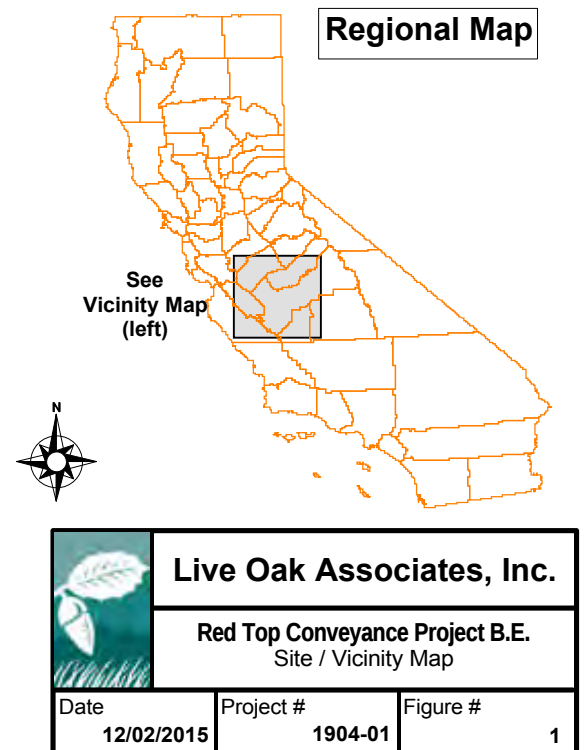
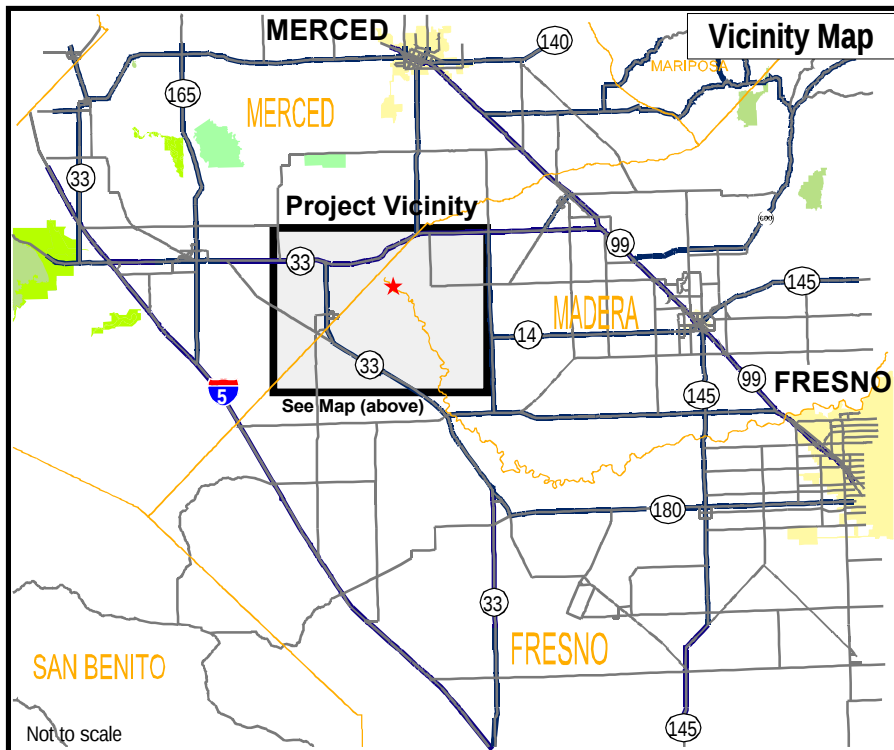
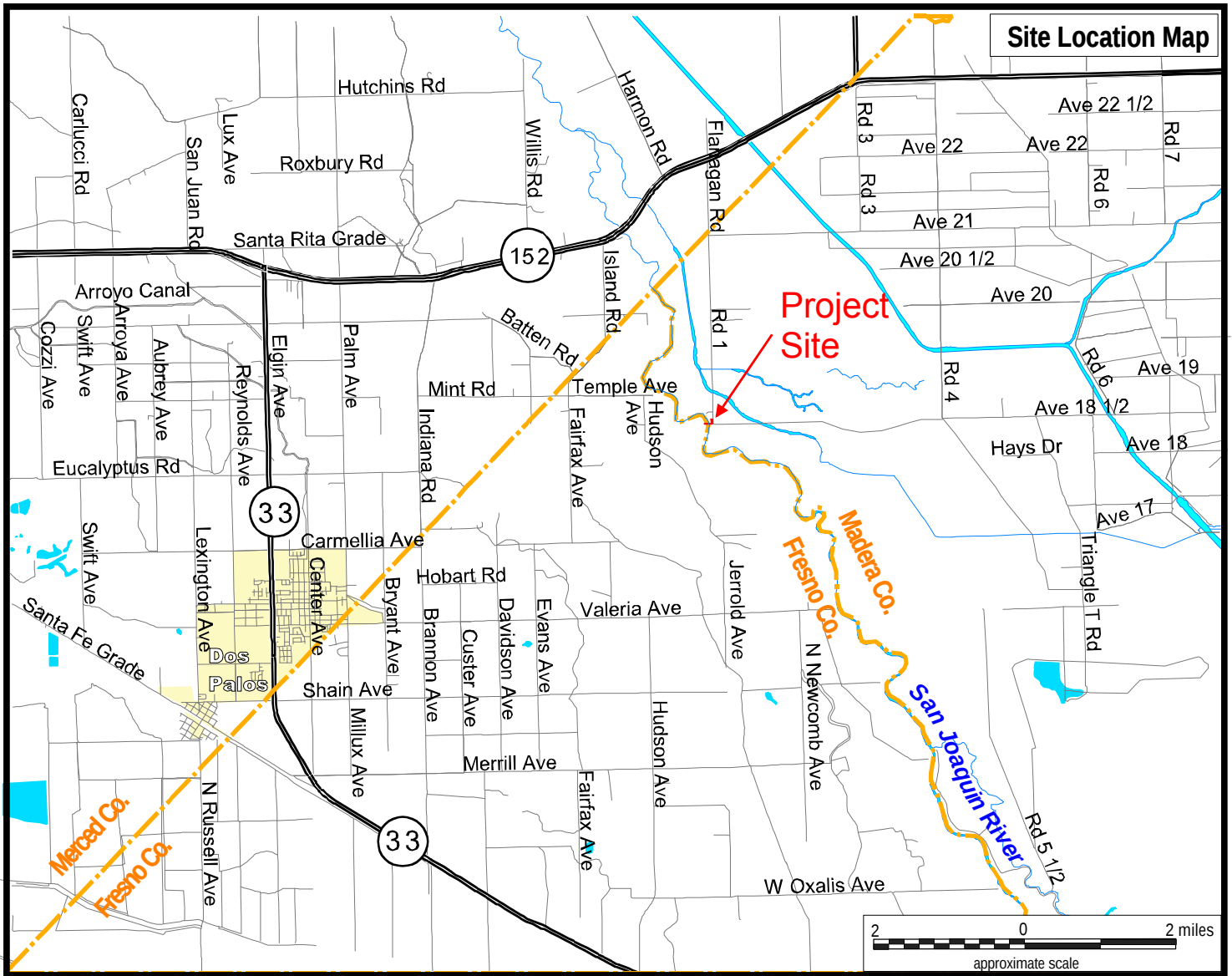
Section 404 of the federal Clean Water Act (CWA) regulates the discharge of dredged or fill material into “navigable waters” (33 U.S.C. §1344), defined in the CWA as “the waters of the United States, including the territorial seas” (33 U.S.C. §1362(7)). By regulation, the U.S. Army Corps of Engineers (USACE) has defined “waters of the United States” to mean:

(1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;

(2) All interstate waters including interstate wetlands;

(3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:

(i) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or



(ii) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or

(iii) Which are used or could be used for industrial purpose by industries in interstate commerce;

(4) All impoundments of waters otherwise defined as waters of the United States under the definition;

(5) Tributaries of waters identified in paragraphs (a) (1) through (4) of this section;

(6) The territorial seas;

(7) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) (1) through (6) of this section (33 CFR § 328.3(a) (3)).

“Waters of the United States” are subject to the jurisdiction of the USACE and, per provisions of Section 404 of the CWA, the discharge of fill into such waters requires a federal permit issued by the USACE.

1.2 SUPREME COURT DECISIONS AFFECTING THE DEFINITIONS OF WATERS OF THE UNITED STATES

A number of U.S. Supreme Court decisions have attempted to address the jurisdictional status of aquatic features that are not hydrologically connected to navigable waters or their tributaries, or where the hydrologic connection is so insignificant that destruction or modification of the aquatic feature would have little effect on downstream waters of the United States.

1.2.1 SWANCC Decision

In January of 2001, the U.S. Supreme Court ruled in *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers* (the SWANCC decision) that “non-navigable, isolated, intrastate” waters could not be claimed as jurisdictional by the USACE on the basis of their use by migratory birds. Although the Court did not

specifically address the meaning of the word “isolated,” it upheld the jurisdictional status of “adjacent” wetlands (and other waters), which are by definition wetlands that are “bordering, contiguous, or neighboring” other jurisdictional waters. Therefore, the term “isolated wetland” has implicitly been defined as ‘wetlands that are not bordering, contiguous, or neighboring’ other jurisdictional waters. This definition does not, however, address the degree of proximity necessary to establish that one wetland (or other water) is “adjacent” to a known jurisdictional water. As established by the Supreme Court in the *United States v. Riverside Bayview Homes, Inc.* in 1985, “wetlands separated from other waters by man-made dikes or barriers, natural river berms, beach dunes, and the like are ‘adjacent wetlands.’”

1.2.2 Consolidated Carabell/Rapanos Decision

In June of 2006 the U.S. Supreme Court ruled in the consolidated cases of *June Carabell v. U.S. Army Corps of Engineers* and *John Rapanos v. United States* that wetlands are waters of the United States “if the wetlands, either alone or in combination with similarly situated lands in the region, significantly affect the chemical, physical, and biological integrity of other covered waters more readily understood as ‘navigable.’” When, in contrast, wetlands’ effects on water quality are speculative or insubstantial, they fall outside the zone fairly encompassed by the statutory term ‘navigable waters.’

On June 5, 2007, the Environmental Protection Agency (EPA) and the USACE jointly issued guidance in interpreting the Carabell/Rapanos cases as they apply to the extent of federal jurisdiction covered by Section 404 of the Clean Water Act. The agencies revised this guidance memorandum on December 2, 2008. The key points of this guidance are that the EPA and the USACE: 1) will assert jurisdiction over traditional navigable waters, wetlands adjacent to traditional navigable waters, relatively permanent non-navigable tributaries of traditional navigable waters where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months), and wetlands that directly abut such tributaries; 2) will decide jurisdiction over relatively impermanent non-navigable tributaries of navigable waters, wetlands adjacent to such tributaries, and wetlands adjacent to but not directly abutting a relatively permanent non-navigable

tributary, based on a fact-specific analysis to determine whether they have a “significant nexus” with a traditional navigable water; and 3) generally will not assert jurisdiction over swales or erosional features (e.g., gullies, small washes characterized by low volume, infrequent, or short duration flow) or ditches excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water. In applying the “significant nexus” standard, the EPA and USACE will “assess the flow characteristics and functions of the tributary itself and the functions performed by all wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical and biological integrity of downstream traditional navigable waters.” “Significant nexus” includes consideration of hydrologic and ecological factors.

1.2.3 Post-Rapanos EPA/USACE Rule

The EPA and USACE published a joint rule in the Federal Register in June of 2015. The rule was an attempt by these agencies to clarify ambiguities of previous Supreme Court decisions. However, in October 2015 the U.S. Court of Appeals for the 6th Circuit granted a nationwide stay against the rule. At the time of the preparation of this report the implementation of the waters of the U.S. rule is still blocked pending future court decisions.

1.3 STATE OF CALIFORNIA JURISDICTION OVER AQUATIC FEATURES

The State of California also asserts jurisdiction over certain drainages and wetlands. The limits of jurisdiction vary slightly from those of the USACE. The California Department of Fish and Wildlife (CDFW) and the Regional Water Quality Control Board (RWQCB) are the two state regulatory agencies responsible for implementing state regulations that identify and protect waters of the state.

According to Section 1602 of the California Fish and Game Code, public and private entities may not substantially divert or obstruct the natural flow of any river, stream, or lake within the state. This section of Fish and Game Code establishes the State’s interest in regulating construction activities in the “bed, channel, or bank” of a natural drainage or stream. A “stream” subject to the jurisdiction of the CDFW has been defined as “a body

of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life” (California Code of Regulations, Title 14).

Since its inception, the RWQCB has had regulatory authority over activities affecting water quality in rivers, streams, lakes, and wetlands of the State. Shortly after the U.S. Supreme Court rendered its SWANCC Decision, the State Water Resources Control Board notified the Regional Boards that isolated waters, including wetlands, were subject to the jurisdiction of the State of California per provisions of the Porter-Cologne Water Quality Control Act (California Water Code, Division 7). The Regional Boards, therefore, now assert jurisdiction over some isolated waters disclaimed as jurisdictional by the USACE.

2.0 METHODS

LOA wildlife/plant/wetland ecologist Jeff Gurule conducted a walking survey of the study area for jurisdictional waters on December 1, 2015. A previous reconnaissance survey was conducted by Mr. Gurule on November 9, 2015. The field investigator used aerial photography and project disturbance boundaries to guide the survey effort. The boundaries of likely jurisdictional waters were mapped using a Trimble Geo XT GPS unit. LOA prepared a map depicting likely jurisdictional waters using information collected in the field overlaid on a recent aerial photograph.

The survey was consistent with guidelines found in the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987), *Minimum Standards for Acceptance of Preliminary Wetland Delineations* (USACE 2001), and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2008). The survey has been described in more detail below.

2.1 SURVEY METHODS FOR AREAS MEETING THE TECHNICAL CRITERIA OF JURISDICTIONAL WETLANDS

Wetlands are defined as “those areas that are inundated or saturated by surface or ground water at a frequency and duration to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas” (Environmental Laboratory 1987). The diagnostic environmental characteristics of wetlands include hydrophytic vegetation, hydric soils and a hydrology characterized by an aquic or peraquic moisture regime. Accordingly, LOA surveyed the site for wetland indicator plants, positive indicators of hydric soils and wetland hydrology.

Four sampling locations were selected within the study area to assess and collect vegetation, hydrology and soils information associated with observed hydrologic features and adjacent upland areas. The location of sample points was selected to best represent the predominant characteristics of the hydrologic feature(s) or upland area(s). This information was entered onto standard data sheets patterned after those used by the USACE for the Arid West Region. The data sheet for each numbered sampling location

can be found in Appendix A. The numbered sampling locations have been identified on the map depicting the areas meeting the criteria of jurisdictional waters. Color photographs, presented in Appendix B, were taken at sampling locations of the study area.

Plants observed within a five foot radius of each sampling location were identified to species using *The Jepson Manual: Vascular Higher Plants of California, Second Edition* (Baldwin et al, 2012). The wetland indicator status of each species was obtained from the *1987 Wetland Plant List, California* (Reed 1988). A complete list of vascular plants identified on the study area during 2015 surveys can be found in Appendix C.

Wetland indicator species are so designated according to their frequency of occurrence in wetlands.

OBLIGATE (OBL)	Probability to occur in wetland is >99%
FACULTATIVE WETLAND (FACW)	Probability to occur in wetland is between 67-99%
FACULTATIVE (FAC)	Probability to occur in wetland is between 33 to 67%
FACULTATIVE UPLAND (FACU)	Probability to occur in wetland is between 1 to <33%.
UPLAND (UPL)	Probability to occur in wetland is <1%

Hydrophytic vegetation is considered present when more than 50% of the dominant species at a given location are composed of obligate, facultative wetland and facultative plant species. However, the Arid West Supplemental Guidelines also incorporate an alternate prevalence index to be calculated in determining the presence of wetland vegetation if the dominance test is not met.

Each sampling location was also examined for positive indicators of wetland hydrology and hydric soils. Evidence of wetland hydrology consisted of primary indicators such as surface water, watermarks, drift lines, sediment deposits, etc. Secondary indicators of wetland hydrology include drainage patterns in wetlands, watermarks (Riverine), drift lines (Riverine), sediment deposits (Riverine), etc. In accordance with USACE guidelines, a soil pit 10” to 12” in depth was dug at all sampling locations. The soils excavated from each pit were also examined for low chromas, gleying, mottling, concretions, sulfidic odors, etc.

2.2 SURVEY METHODS FOR TRIBUTARY WATERS

In the absence of adjacent wetlands, the limit of jurisdiction in navigable rivers and their tributaries, whether inter- or intrastate, extends to “ordinary high water” (OHW). OHW refers to “that line on the shore established by the fluctuation of water and indicated by physical characteristics such as a clear natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.”

The term “channel” as used in this report refers to a drainage feature with a bed and defined bank. Where drainage channels are present on a given site, it is customary to walk the channel and take width measurements at a standard interval. Width measurements represent the channel width between OHW marks on opposing banks.

The field investigator visually inspected the site for physical characteristics of OHW in order to determine the extent of possible jurisdiction. Accumulation of leaf litter, debris and sediment, and water cuts along the banks of the drainage provided evidence of OHW.

3.0 RESULTS

3.1 SETTING

Two hydrologic features were found within the study area, the San Joaquin River (SJR) and the Poso Canal. The portion of the SJR within the study area consists of a seasonally flowing channel confined by levee banks. Most of the area between the levees is outside of ordinary high water (OHW). Vegetation within the SJR channel consists of a mix of mostly upland native and nonnative species. Riparian habitat occurs in portions of the study area along the SJR levee banks. The Poso Canal runs parallel to the west bank of the SJR and is dewatered approximately every other year between November and February. Riparian vegetation is absent from the canal. Areas outside the banks of these two channels are heavily disturbed by agricultural activities.

Elevations of the study area range from 104 to 118 feet National Geodetic Vertical Datum (NGVD) (see Figure 2). The study area, like most of California, has a Mediterranean climate with cool moist winters and hot dry summers. Precipitation falls in the form of rain between October and May, with the heaviest amounts in December, January, February, and March. Annual precipitation is approximately 10 inches.

Three soil mapping units from two soil series were identified within the project site (California Soil Resources Lab 2008) (Table 1). All three soils are considered hydric. Hydric soils are soils that are saturated, flooded, or ponded long enough to develop anaerobic conditions in the upper part; under sufficiently wet conditions, they support the growth and regeneration of hydrophytic vegetation (USDA Soil Conservation Service 1985, as amended by the National Technical Committee for Hydric Soils in December 1986).

The entire site is located on alluvium transported from the Sierra Nevada. Alluvium of the site consists of sands and gravels derived from granite and some older metamorphic and sedimentary rock. This alluvium has accumulated on site since the time of the Pleistocene from overbank flooding of the SJR.

TABLE 1. SOILS OF THE PROJECT SITE.				
Soil Mapping Unit	Map Unit Symbol	Parent Material	Drainage Class	Hydric
<i>Fresno County, California</i>				
Elnido sandy loam, drained, 0 to 1 percent slopes	320	Alluvium derived from igneous rock	Poorly drained	Yes
Bisgani-Elnido association, 0 to 1 percent slopes	941	Alluvium derived from igneous rock	Poorly drained	Yes
<i>Madera County, California</i>				
Columbia fine sandy loam, moderately deep and deep over temple soils, 0 to 1 percent slopes	CmtA	Coarse-loamy alluvium derived from igneous, metamorphic and sedimentary rock	Somewhat poorly drained	Yes

Figure 3 illustrates the location of these soils across the study area. Detailed information pertaining to these soils can be found in Appendix D.

3.2 POTENTIAL WATERS OF THE UNITED STATES

Potential jurisdictional waters identified within the study area comprised the SJR, a known water of the U.S., and the Poso Canal, a potential tributary water of the United States. The remainder of the site consisted of upland habitats supporting native and non-native vegetation. Potential jurisdictional waters identified during the field survey are depicted in Figure 4, and summarized in Table 2.

The study area encompassed approximately 80 linear feet of the SJR and 80 linear feet of the east half of the Poso Canal. Approximately 8,548 square feet (0.19 acres) of jurisdictional waters was identified within the study area.

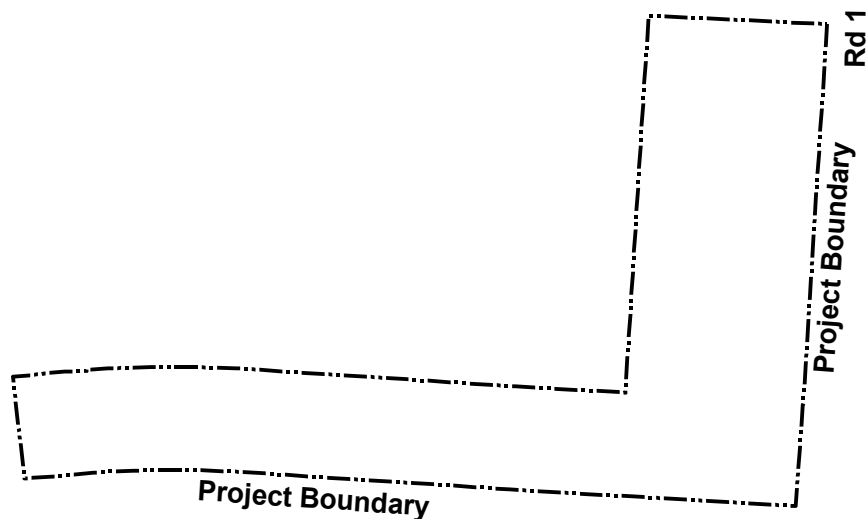
TABLE 2. POTENTIAL JURISDICTIONAL WATERS IDENTIFIED ON THE STUDY AREA.			
Type of Potential Jurisdictional Water	Approximate length (lf)	Approximate Area (ft.²)	Approximate Area (acres)
<i>Traditionally Navigable Water</i> San Joaquin River	80	7,071	0.16
<i>Potential Tributary Water</i> Poso Canal	80	1,477	0.03
Total	160	8,548	0.19



LEGEND

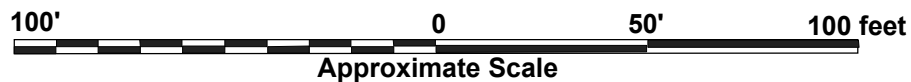
- 320** ELNIDO SANDY LOAM, DRAINED, 0 TO 1% slopes
941 BISGANI-ELNIDO ASSOCIATION, 0 TO 1% slopes
CmA Columbia fine sandy loam, 0 to 1% slopes
CmtA Columbia fine sandy loam over temple soils, 0 to 1% slopes

Fresno Co



Madera Co

Rd 18-1/2



Source:
USDA-FSA Aerial Photography Field Office 2012
USDA Soil Conservation Service



Live Oak Associates, Inc.

Red Top Conveyance Project
Soils

Date	Project #	Figure #
12/02/2015	1904-01	3



LEGEND



- Jurisdictional waters**
- Traditionally Navigable Waters (7,071 SF / 0.16 Ac. 82 LF)
San Joaquin River



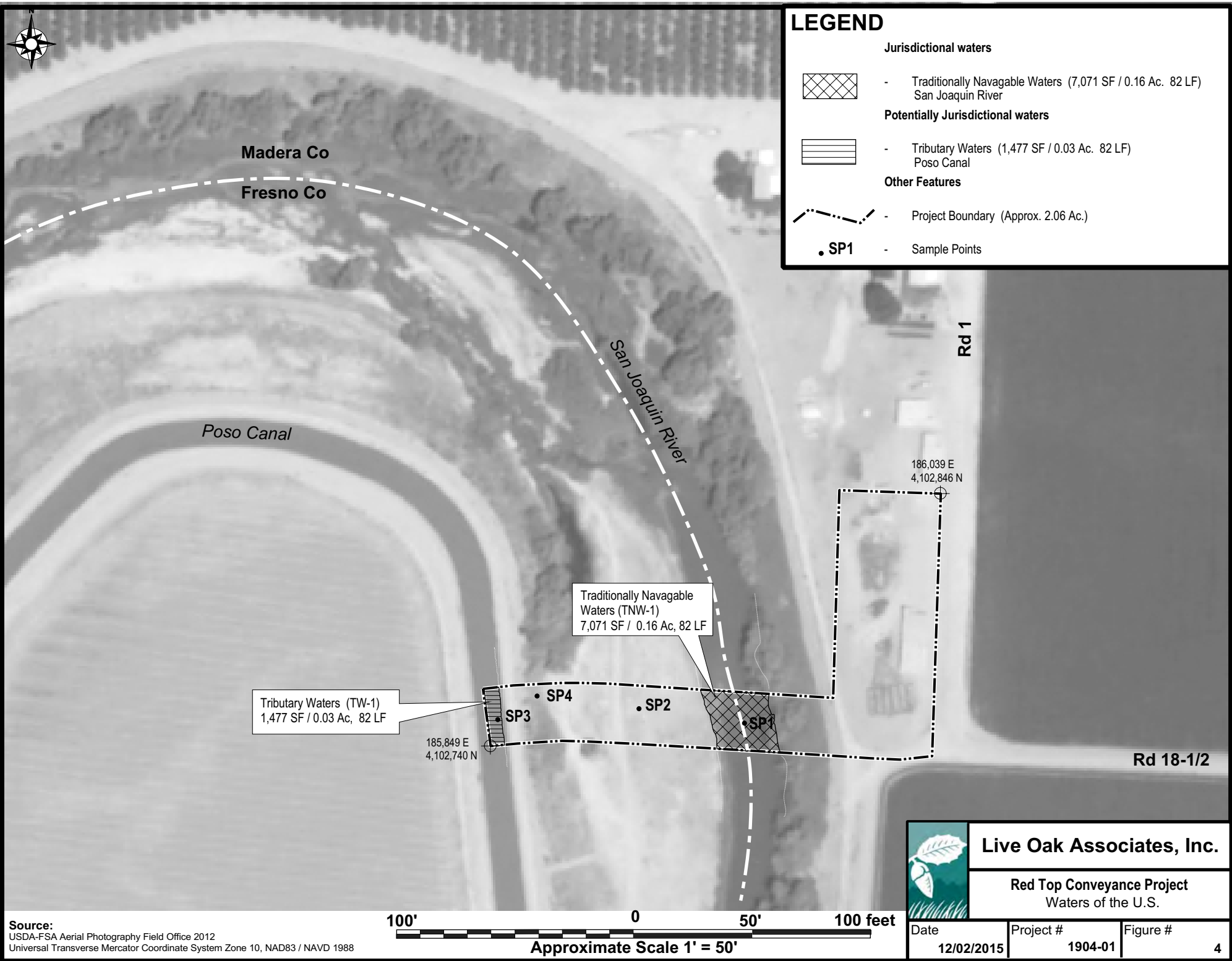
- Potentially Jurisdictional waters**
- Tributary Waters (1,477 SF / 0.03 Ac. 82 LF)
Poso Canal



- Other Features**
- Project Boundary (Approx. 2.06 Ac.)



- Sample Points



Potential jurisdictional waters of the site are described below:

3.2.1 San Joaquin River Channel

Vegetation: The bottom and lower sides of the SJR channel below the OHW mark were sparsely vegetated with mostly non-native upland forbs and shrubs, including black mustard (*Brassica nigra*) (UPL), annual bursage (*Ambrosia acanthicarpa*) (UPL), Canada horseweed (*Erigeron canadensis*) (FACU) and a couple saplings of Goodding's black willow (*Salix gooddingii*) (FACW). The vegetation was dominated by non-wetland species, and therefore the technical criterion for hydrophytic vegetation was not met.

Soils: The bed and lower banks of the SJR channel below the OHW mark were comprised of unconsolidated sand. The bed of the channel was not inundated during the site survey. Field indicators of hydric soils were absent at the location of the sample point and not apparent from visual inspection of the rest of the channel within the study area.

Hydrology: The SJR supports seasonal flows most years during winter and spring, and sometimes into summer, depending on yearly precipitation amounts. The channel showed evidence of wetland hydrology by having a defined bed and bank, a cut into the west bank from OHW, a scoured footprint within OHW where vegetation was sparse, and numerous aerial photos illustrating flows in this area of the channel.

Due to the absence of dominant wetland vegetation and field indicators of hydric soils associated with the SJR, this stretch of the SJR did not meet the criteria of a jurisdictional wetland. However, the hydrologic indicators of ordinary high water were used to map the limits of USACE jurisdiction.

3.2.2 Poso Canal

Vegetation: The inundated portion of the Poso Canal was devoid of vegetation. A thin, sparse line of wetland vegetation was present at the water's edge in the form of Mexican sprangletop (*Leptochloa fusca ssp. uninervia*). Due to the predominant absence of vegetation, the technical criterion for hydrophytic vegetation was not met.

Soils: The bed and lower banks of the Poso Canal below the OHW mark are assumed to be hydric, since the canal is inundated throughout most of the year. No soil pit was dug due to inundation.

Hydrology: The Poso Canal receives water from the Main Canal in Fresno County, which, in turn, receives water from the SJR at Mendota Pool. The canal appears to have a downstream connection to the SJR far north of the study area. The Poso Canal is permanently inundated every other year and sometimes temporarily dewatered during the alternating years. Numerous aerial photos reveal flows in the canal.

Due to the absence of dominant wetland vegetation this stretch of the Poso Canal did not meet the criteria of a jurisdictional wetland. However, the hydrologic indicators of ordinary high water were used to map the limits of USACE jurisdiction.

3.3 UPLAND AREAS

The remaining portions of the study area consisted of upland flood plain within the SJR levees, riparian vegetation along the SJR levee banks, and ruderal areas nearly devoid of vegetation. These areas did not meet the technical criteria of jurisdictional wetlands.

Vegetation: Weedy non-native plants, mixed with a few natives were the dominant vegetation within upland areas, which included red brome (*Bromus madritensis ssp. rubens*) (UPL), redstem filaree (*Erodium cicutarium*) (UPL), black mustard (UPL), ripgut brome (*Bromus diandrus*) (UPL), bractscale (*Atriplex serenana* var. *serenana*) (FAC), cheeseweed (*Malva sp.*) (UPL), and fiddleneck (*Amsinckia sp.*) (UPL), among others.

Soils: No field indicators of hydric soils were observed at the sample locations adjacent to the OHW channel. The soils consisted of unconsolidated sand (Sample Point 2) or very loose loamy sand (Sample Point 4).

Hydrology: Evidence of wetland hydrology, such as water-stained leaves, saturated or inundated soils, and drift deposits was absent in these areas. Evidence of inundation on aerial imagery was absent for all upland areas located outside of the SJR levee banks; however, the west edge of the flood plain within the SJR levees appear inundated in

aerial imagery captured in June of 2011, a year of above-average rainfall. Field inspection of the west side of the river channel found no OHW marks.

4.0 DISCUSSION

The potential jurisdictional waters mapped on the study area are within OHW of the SJR channel and the Poso Canal. The SJR is considered a Traditionally Navigable Water and a Section 10 water by the USACE. The Poso Canal receives water from the SJR and may have a downstream connection to the SJR. The USACE definition of a jurisdictional tributary water includes artificial waterways that receive water from a water of the U.S. and release water to a waters of the U.S. Therefore, the Poso Canal has been categorized as a potential tributary water.

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APPENDIX A: WETLAND DATA SHEETS

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Red Top Conveyance Project City/County: Madera/Fresno Sampling Date: 12-1-15
 Applicant/Owner: CCID State: CA Sampling Point: 1
 Investigator(s): Jeff Gurule Section, Township, Range: Sec 2, T11S, R13E
 Landform (hillslope, terrace, etc.): River bed Local relief (concave, convex, none): Concave Slope (%): <2%
 Subregion (LRR): C Lat: 105 719757.85E Long: 4099772.74 Datum: UTM NAD83
 Soil Map Unit Name: Water NWI classification: Riverine

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

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

Hydrophytic Vegetation Present? Yes ☐ No ☒	Is the Sampled Area within a Wetland? Yes ☐ No ☒
Hydric Soil Present? Yes ☐ No ☒	
Wetland Hydrology Present? Yes ☒ No ☐	
Remarks: <u>Area the ^{dry} sandy bed of the San Joaquin River.</u>	

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>/</u>				Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A)
2. <u>/</u>				Total Number of Dominant Species Across All Strata: <u>1</u> (B)
3. <u>/</u>				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0%</u> (A/B)
4. <u>/</u>				
Total Cover: <u>0%</u>				
Shrub/Strat				Prevalence Index worksheet:
1. <u>/</u>				Total % Cover of: <u>/</u> Multiply by: <u>/</u>
2. <u>/</u>				OBL species <u>/</u> x 1 = <u>/</u>
3. <u>/</u>				FACW species <u>/</u> x 2 = <u>/</u>
4. <u>/</u>				FAC species <u>/</u> x 3 = <u>/</u>
5. <u>/</u>				FACU species <u>/</u> x 4 = <u>/</u>
Total Cover: <u>0%</u>				UPL species <u>/</u> x 5 = <u>/</u>
Herb Stratum				Column Totals: <u>/</u> (A) <u>/</u> (B)
1. <u>Brassica nigra</u>	<u>5%</u>	<u>Yes</u>	<u>UPL</u>	Prevalence Index = B/A = <u>/</u>
2. <u>Ambrosia acanthocarpa</u>	<u>1%</u>	<u>No</u>	<u>UPL</u>	
3. <u>Erigeron canadensis</u>	<u>0.3%</u>	<u>No</u>	<u>FACU</u>	
4. <u>/</u>				
5. <u>/</u>				
6. <u>/</u>				
7. <u>/</u>				
8. <u>/</u>				
Total Cover: <u>6.3%</u>				
Woody Vine Stratum				Hydrophytic Vegetation Indicators:
1. <u>/</u>				☐ Dominance Test is >50%
2. <u>/</u>				☐ Prevalence Index is ≤3.0 ¹
				☐ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
				☐ Problematic Hydrophytic Vegetation ¹ (Explain)
				¹ Indicators of hydric soil and wetland hydrology must be present.
% Bare Ground in Herb Stratum <u>93.7</u> % Cover of Biotic Crust <u>0%</u>				Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks:

Hydrophytic vegetation absent.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Red Top Conveyance Proj City/County: Madera/Fresno Sampling Date: 12-1-15
 Applicant/Owner: CCI D State: CA Sampling Point: 2
 Investigator(s): Jeff Gurule Section, Township, Range: Sec. 2, T11S, R13E
 Landform (hillslope, terrace, etc.): Flood plain Local relief (concave, convex, none): Concave Slope (%): <2%
 Subregion (LRR): C Lat: 105 719712.20 E Long: 4099777.40 N Datum: UTM NAD83
 Soil Map Unit Name: Bisquni-Elnido Assoc., 0 to 1% slopes NWI classification: Riverine
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? No Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? No (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ☐ No ☒	Is the Sampled Area within a Wetland? Yes ☐ No ☒
Hydric Soil Present?	Yes ☐ No ☒	
Wetland Hydrology Present?	Yes ☐ No ☒	
Remarks: <u>Area an upland flood plain within the levee banks of the San Joaquin River.</u>		

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>/</u>				Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A)
2. <u>/</u>				Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. <u>/</u>				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0%</u> (A/B)
4. <u>/</u>				
Total Cover: <u>0%</u>				
Sapling/Shrub Stratum				Prevalence Index worksheet:
1. <u>/</u>				Total % Cover of: <u>/</u> Multiply by:
2. <u>/</u>				OBL species <u>/</u> x 1 = <u>/</u>
3. <u>/</u>				FACW species <u>/</u> x 2 = <u>/</u>
4. <u>/</u>				FAC species <u>/</u> x 3 = <u>/</u>
5. <u>/</u>				FACU species <u>/</u> x 4 = <u>/</u>
Total Cover: <u>0%</u>				UPL species <u>/</u> x 5 = <u>/</u>
				Column Totals: <u>/</u> (A) <u>/</u> (B)
				Prevalence Index = B/A = <u>/</u>
Herb Stratum				Hydrophytic Vegetation Indicators:
1. <u>Bromus madritensis</u>	<u>15%</u>	<u>Yes</u>	<u>Upl</u>	☐ Dominance Test is >50%
2. <u>Brasica nigra</u>	<u>5%</u>	<u>No</u>	<u>Upl</u>	☐ Prevalence Index is ≤3.0 ¹
3. <u>Erodium cicutarium</u>	<u>12%</u>	<u>Yes</u>	<u>Upl</u>	☐ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4. <u>Erodium botrys</u>	<u>1%</u>	<u>No</u>	<u>FACU</u>	☐ Problematic Hydrophytic Vegetation ¹ (Explain)
5. <u>/</u>				
6. <u>/</u>				
7. <u>/</u>				
8. <u>/</u>				
Total Cover: <u>33%</u>				¹ Indicators of hydric soil and wetland hydrology must be present.
Woody Vine Stratum				Hydrophytic Vegetation Present? Yes ☐ No ☒
1. <u>/</u>				
2. <u>/</u>				
Total Cover: <u>0%</u>				
% Bare Ground in Herb Stratum <u>77%</u> % Cover of Biotic Crust <u>0%</u>				

Remarks:

Hydrophytic Vegetation is absent,

SOIL

Sampling Point: 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)							
Depth (inches)	Matrix		Redox Features			Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹		
0-12	4/3	100	—	0	—	Sandy	Unconsolidated Sand

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

☐ Histosol (A1)	☐ Sandy Redox (S5)	☐ 1 cm Muck (A9) (LRR C)
☐ Histic Epipedon (A2)	☐ Stripped Matrix (S6)	☐ 2 cm Muck (A10) (LRR B)
☐ Black Histic (A3)	☐ Loamy Mucky Mineral (F1)	☐ Reduced Vertic (F18)
☐ Hydrogen Sulfide (A4)	☐ Loamy Gleyed Matrix (F2)	☐ Red Parent Material (TF2)
☐ Stratified Layers (A5) (LRR C)	☐ Depleted Matrix (F3)	☐ Other (Explain in Remarks)
☐ 1 cm Muck (A9) (LRR D)	☐ Redox Dark Surface (F6)	
☐ Depleted Below Dark Surface (A11)	☐ Depleted Dark Surface (F7)	
☐ Thick Dark Surface (A12)	☐ Redox Depressions (F8)	
☐ Sandy Mucky Mineral (S1)	☐ Vernal Pools (F9)	
☐ Sandy Gleyed Matrix (S4)		

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ☒

Remarks:

Deep unconsolidated sand.

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (2 or more required)
Primary Indicators (any one indicator is sufficient)		
☐ Surface Water (A1)	☐ Salt Crust (B11)	☐ Water Marks (B1) (Riverine)
☐ High Water Table (A2)	☐ Biotic Crust (B12)	☐ Sediment Deposits (B2) (Riverine)
☐ Saturation (A3)	☐ Aquatic Invertebrates (B13)	☐ Drift Deposits (B3) (Riverine)
☐ Water Marks (B1) (Nonriverine)	☐ Hydrogen Sulfide Odor (C1)	☐ Drainage Patterns (B10)
☐ Sediment Deposits (B2) (Nonriverine)	☐ Oxidized Rhizospheres along Living Roots (C3)	☐ Dry-Season Water Table (C2)
☐ Drift Deposits (B3) (Nonriverine)	☐ Presence of Reduced Iron (C4)	☐ Thin Muck Surface (C7)
☐ Surface Soil Cracks (B6)	☐ Recent Iron Reduction in Plowed Soils (C6)	☐ Crayfish Burrows (C8)
☐ Inundation Visible on Aerial Imagery (B7)	☐ Other (Explain in Remarks)	☐ Saturation Visible on Aerial Imagery (C9)
☐ Water-Stained Leaves (B9)		☐ Shallow Aquitard (D3)
		☐ FAC-Neutral Test (D5)
Field Observations:		
Surface Water Present? Yes _____ No ☒	Depth (inches): _____	
Water Table Present? Yes _____ No ☒	Depth (inches): _____	
Saturation Present? Yes _____ No ☒	Depth (inches): _____	
(includes capillary fringe)		Wetland Hydrology Present? Yes _____ No ☒
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		
Historic aerial photos show this area consistently above ordinary high water mark.		

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Red Top Conveyance Proj City/County: Fresno/Madera Sampling Date: 12-1-15
 Applicant/Owner: CCIR State: CA Sampling Point: 3
 Investigator(s): Jeff Gurule Section, Township, Range: Sec. 2, T11S, R13E
 Landform (hillslope, terrace, etc.): Canal Local relief (concave, convex, none): Concave Slope (%): <2%
 Subregion (LRR): C Lat: 10S 719651.98E Long: 4099763.67N Datum: UTM NAD83
 Soil Map Unit Name: Elridge Sandy Loam, Drained, 0 to 1% slopes NWI classification: None

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

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

Hydrophytic Vegetation Present? Yes ☐ No ☒	Is the Sampled Area within a Wetland? Yes ☐ No ☒
Hydric Soil Present? Yes ☒ No ☐	
Wetland Hydrology Present? Yes ☒ No ☐	
Remarks: <u>Area is the inundated and well maintained Poso Canal.</u>	

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover: <u>0%</u>			

Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
Total Cover: <u>0%</u>			

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover: <u>0%</u>			

Woody Vine Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
Total Cover: <u>0%</u>			

% Bare Ground in Herb Stratum 0% % Cover of Biotic Crust 0%

Remarks: <u>Area inundated, no ^{rooted} vegetation present.</u>	
---	--

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals:	(A) (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is >3.0¹

☐ Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ☐ No ☒

Sampling Point: 3

HYDROLOGY

US Army Corps of Engineers

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Red Top Conveyance Proj City/County: Fresno/Madera Sampling Date: 12-1-15
 Applicant/Owner: CCIP State: CA Sampling Point: 4
 Investigator(s): Jeff Gurule Section, Township, Range: Sec. 2, T11S, R13E
 Landform (hillslope, terrace, etc.): Levee bank Local relief (concave, convex, none): concave Slope (%): 20%
 Subregion (LRR): C Lat: 105 7196 72.42E Long: 4099776.02N Datum: UTM NAD83
 Soil Map Unit Name: Elmido Sandy Loam, Drained, 0 to 1% slopes NWI classification: Riverine

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

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

Hydrophytic Vegetation Present? Yes ☒ No ☐	Is the Sampled Area within a Wetland? Yes ☐ No ☒
Hydric Soil Present? Yes ☐ No ☒	
Wetland Hydrology Present? Yes ☐ No ☒	
Remarks: <u>Area a vegetated levee bank of San Joaquin River. Wetland by hydrology and hydric soils absent.</u>	

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Salix exigua</u>	20	Yes	FACW	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)
2. <u>Salix lasiolepis</u>	0	No		Total Number of Dominant Species Across All Strata: <u>3</u> (B)
3. <u>Salix lasiolepis</u>	0	No		Percent of Dominant Species That Are OBL, FACW, or FAC: <u>66.7</u> (A/B)
4. <u>Salix lasiolepis</u>	0	No		
Total Cover: <u>0%</u>				
Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. <u>Salix exigua</u>	20	Yes	FACW	Total % Cover of: <u>20</u> Multiply by: <u>3</u>
2. <u>Salix lasiolepis</u>	0	No		OBL species <u>0</u> x 1 = <u>0</u>
3. <u>Salix lasiolepis</u>	0	No		FACW species <u>0</u> x 2 = <u>0</u>
4. <u>Salix lasiolepis</u>	0	No		FAC species <u>0</u> x 3 = <u>0</u>
5. <u>Salix lasiolepis</u>	0	No		FACU species <u>0</u> x 4 = <u>0</u>
Total Cover: <u>20</u>				UPL species <u>0</u> x 5 = <u>0</u>
Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Column Totals: (A) <u>20</u> (B) <u>0</u>
1. <u>Bromus madritensis</u>	40	Yes	UPL	Prevalence Index = B/A = <u>0.2</u>
2. <u>Conium maculatum</u>	15	Yes	FACW	Hydrophytic Vegetation Indicators:
3. <u>Silybum maritimum</u>	10	No	UPL	— Dominance Test is >50%
4. <u>Brassica nigra</u>	1	No	UPL	— Prevalence Index is ≤3.0 ¹
5. <u>Brassica nigra</u>	0	No		— Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
6. <u>Brassica nigra</u>	0	No		— Problematic Hydrophytic Vegetation ¹ (Explain)
7. <u>Brassica nigra</u>	0	No		
8. <u>Brassica nigra</u>	0	No		
Total Cover: <u>66</u>				
Woody Vine Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes ☒ No ☐
1. <u>Salix lasiolepis</u>	0	No		
2. <u>Salix lasiolepis</u>	0	No		
Total Cover: <u>0%</u>				
% Bare Ground in Herb Stratum <u>14%</u>	% Cover of Biotic Crust <u>0%</u>			
Remarks: <u>Hydrophytic Vegetation (dominant) greater than 50%</u>				

SOIL

Sampling Point: 4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12	3/2	100	—	0	—	—	Loamy Sand	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils³:

- ☐ Histosol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Stratified Layers (A5) (LRR C)
☐ 1 cm Muck (A9) (LRR D)
☐ Depleted Below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Mucky Mineral (S1)
☐ Sandy Gleyed Matrix (S4)

- ☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Loamy Mucky Mineral (F1)
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)
☐ Vernal Pools (F9)

- ☐ 1 cm Muck (A9) (LRR C)
☐ 2 cm Muck (A10) (LRR B)
☐ Reduced Vertic (F18)
☐ Red Parent Material (TF2)
☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

 Type: _____
 Depth (inches): _____
Hydric Soil Present? Yes _____ No ☒

Remarks:

Loose Loamy sand, no redox features.

HYDROLOGY

Wetland Hydrology Indicators:

Secondary Indicators (2 or more required)

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
☐ High Water Table (A2)
☐ Saturation (A3)
☐ Water Marks (B1) (Nonriverine)
☐ Sediment Deposits (B2) (Nonriverine)
☐ Drift Deposits (B3) (Nonriverine)
☐ Surface Soil Cracks (B6)
☐ Inundation Visible on Aerial Imagery (B7)
☐ Water-Stained Leaves (B9)

- ☐ Salt Crust (B11)
☐ Biotic Crust (B12)
☐ Aquatic Invertebrates (B13)
☐ Hydrogen Sulfide Odor (C1)
☐ Oxidized Rhizospheres along Living Roots (C3)
☐ Presence of Reduced Iron (C4)
☐ Recent Iron Reduction in Plowed Soils (C6)
☐ Other (Explain in Remarks)

- ☐ Water Marks (B1) (Riverine)
☐ Sediment Deposits (B2) (Riverine)
☐ Drift Deposits (B3) (Riverine)
☐ Drainage Patterns (B10)
☐ Dry-Season Water Table (C2)
☐ Thin Muck Surface (C7)
☐ Crayfish Burrows (C8)
☐ Saturation Visible on Aerial Imagery (C9)
☐ Shallow Aquitard (D3)
☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ☒ Depth (inches): _____
 Water Table Present? Yes _____ No ☒ Depth (inches): _____
 Saturation Present? Yes _____ No ☒ Depth (inches): _____
 (includes capillary fringe)

Wetland Hydrology Present? Yes _____ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Area vegetated levee bank of San Joaquin River.
Area outside of OHW.

APPENDIX B: SELECTED PHOTOGRAPHS OF THE STUDY AREA



Photo 1. Sample Point 1 within OHW of the San Joaquin River channel.



Photo 2. Sample Point 2 within upland flood plain within the leveed channel of the San Joaquin River.



Photo 3. Sample Point 3 within the interior of the Poso Canal



Photo 4. Sample Point 4 within the upper west levee bank of the San Joaquin River.



Photo 5. Cut edges of the bank and dramatic change in vegetation cover provided evidence of OHW.



Photo 6. OHW marks were absent from the western edge of the leveed San Joaquin River channel.

APPENDIX C: VASCULAR PLANTS OF THE STUDY AREA

APPENDIX A: VASCULAR PLANTS OF THE STUDY AREA

The plants species listed below were observed on the project site during surveys conducted by Live Oak Associates, Inc. on November 9 and December 1, 2015. The U.S. Fish and Wildlife Service wetland indicator status of each plant has been shown following its common name.

OBL - Obligate
 FACW - Facultative Wetland
 FAC - Facultative
 FACU - Facultative Upland
 UPL - Upland

APIACEAE – Carrot Family

<i>Conium maculatum</i>	Poison Hemlock	FACW
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ASTERACEAE - Sunflower Family

<i>Ambrosia acanthicarpa</i>	Annual Bursage	UPL
<i>Artemisia douglasiana</i>	Mugwort	FAC
<i>Erigeron canadensis</i>	Canada Horseweed	FACU
<i>Heterotheca grandiflora</i>	Telegraph Weed	UPL
<i>Pseudognaphalium luteoalbum</i>	Jersey Cudweed	FAC
<i>Silybum marianum</i>	Milk Thistle	UPL
<i>Stephanomeria exigua</i>	Small Wirelettuce	UPL
<i>Xanthium strumarium</i>	Rough Cocklebur	FAC

BORAGINACEAE – Borage Family

<i>Amsinckia sp.</i>	Fiddleneck	UPL
<i>Heliotropium curassavicum</i>	Heliotrope	FACU

BRASSICACEAE – Mustard Family

<i>Brassica nigra</i>	Black Mustard	UPL
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CHENOPODIACEAE – Goosefoot Family

<i>Atriplex serenana</i> var. <i>serenana</i>	Bractscale	FAC
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GERANIACEAE - Geranium Family

<i>Erodium botrys</i>	Broadleaf Filaree	FACU
<i>Erodium cicutarium</i>	Red Stemmed Filaree	UPL

JUNCACEAE – Rush Family

<i>Juncus sp.</i>	Rush	FACW
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LAMIACEAE – Mint Family

<i>Marrubium vulgare</i>	Common Horehound	UPL
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MALVACEAE – Mallow Family

<i>Malva sp.</i>	Cheeseweed	UPL
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OLEACEAE – Ash Family

<i>Fraxinus latifolia</i>	Oregon Ash	FACW
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POACEAE - Grass Family

<i>Bromus diandrus</i>	Ripgut	UPL
<i>Bromus hordeaceus</i>	Soft Chess	FACU
<i>Bromus madritensis rubens</i>	Red Brome	UPL
<i>Cynodon dactylon</i>	Bermuda Grass	FACU
<i>Distichlis spicata</i>	Salt Grass	FAC

<i>Leptochloa uninerva</i>	Mexican Sprangletop	UPL
<i>Polypogon monspeliensis</i>	Rabbitsfoot Grass	FACW
POLYGONACEAE – Smartweed Family		
<i>Rumex crispus</i>	Curly Dock	FAC
ROSACEAE – Rose Family		
<i>Rosa californica</i>	California Wild Rosa	FAC
<i>Rubus ursinus</i>	California Blackberry	FAC
RUBIACEAE – Madder Family		
<i>Cephalanthus occidentalis</i>	Button Willow	OBL
SALICACEAE – Willow Family		
<i>Salix exigua</i>	Sandbar Willow	FACW
<i>Salix gooddingii</i>	Goodding’s Black Willow	FACW
SOLANACEAE - Nightshade Family		
<i>Datura wrightii</i>	Jimson Weed	UPL
URTICACEAE- Nettle Family		
<i>Urtica dioica</i> ssp. <i>holericea</i>	Stinging Nettle	FAC
VISCACEAE – Mistletoe Family		
<i>Phoradendron</i> sp.	Mistletoe	UPL

APPENDIX D: SOILS INFORMATION

Map Unit Description

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

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

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

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

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

Soils that have profiles that are almost alike make up a *soil series*. All the soils of a series have major horizons that are similar in composition, thickness, and arrangement. Soils of a given series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

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

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

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

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

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

Additional information about the map units described in this report is available in other soil reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the soil reports define some of the properties included in the map unit descriptions.

Report—Map Unit Description

Fresno County, California, Western Part

320—Elnido sandy loam, drained, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: hnz7

Elevation: 110 to 170 feet

Mean annual precipitation: 8 to 9 inches

Mean annual air temperature: 62 to 63 degrees F

Frost-free period: 230 to 250 days

Farmland classification: Prime farmland if irrigated

Map Unit Composition

Elnido, sandy loam, drained, and similar soils: 85 percent

Minor components: 15 percent

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

Description of Elnido, Sandy Loam, Drained**Setting**

Landform: Flood plains on basin floors

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Talf

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Alluvium derived from igneous rock

Typical profile

Ap - 0 to 14 inches: sandy loam

Bwg - 14 to 32 inches: sandy loam

Bkg - 32 to 40 inches: fine sandy loam

Cg1 - 40 to 53 inches: sandy loam

Cg2 - 53 to 60 inches: sand

Properties and qualities

Slope: 0 to 1 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Poorly drained

Runoff class: Negligible

Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: Rare

Frequency of ponding: None

Calcium carbonate, maximum in profile: 3 percent

Salinity, maximum in profile: Nonsaline to slightly saline (1.0 to 4.0 mmhos/cm)

Sodium adsorption ratio, maximum in profile: 20.0

Available water storage in profile: Moderate (about 6.6 inches)

Interpretive groups

Land capability classification (irrigated): 2w

Land capability classification (nonirrigated): 4w

Hydrologic Soil Group: A

Minor Components**Palazzo, sandy loam, drained**

Percent of map unit: 2 percent

Landform: Flood plains on basin floors

Tachi, clay

Percent of map unit: 2 percent

Landform: Flood plains on basin floors

Wekoda, clay, partially drained*Percent of map unit: 2 percent**Landform: Flood plains on basin floors***Armona, loam, partially drained***Percent of map unit: 2 percent**Landform: Flood plains on basin floors***Bisgani, sandy loam, drained***Percent of map unit: 2 percent**Landform: Flood plains on basin floors***Bolfar, loam, drained***Percent of map unit: 2 percent**Landform: Flood plains on basin floors***Dospalos, clay loam, drained***Percent of map unit: 2 percent**Landform: Flood plains on basin floors***Unnamed, river channel***Percent of map unit: 1 percent**Landform: Flood plains**Microfeatures of landform position: Channels***941—Bisgani-Elnido association, 0 to 1 percent slopes****Map Unit Setting***National map unit symbol: hp2j**Elevation: 110 to 140 feet**Mean annual precipitation: 8 to 9 inches**Mean annual air temperature: 62 to 63 degrees F**Frost-free period: 230 to 250 days**Farmland classification: Not prime farmland***Map Unit Composition***Bisgani, loamy sand, and similar soils: 45 percent**Elnido, sandy loam, and similar soils: 40 percent**Minor components: 15 percent**Estimates are based on observations, descriptions, and transects of the mapunit.***Description of Bisgani, Loamy Sand****Setting***Landform: Flood plains**Landform position (two-dimensional): Toeslope**Landform position (three-dimensional): Talf**Microfeatures of landform position: Bars**Down-slope shape: Linear**Across-slope shape: Linear**Parent material: Alluvium derived from igneous rock*

Typical profile

A - 0 to 10 inches: loamy sand
Cg1 - 10 to 13 inches: loamy sand
Cg2 - 13 to 60 inches: sand

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: About 6 to 72 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Low (about 3.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D

Description of Elnido, Sandy Loam**Setting**

Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Microfeatures of landform position: Channels
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from igneous rock

Typical profile

Ap - 0 to 14 inches: sandy loam
Bwg - 14 to 32 inches: sandy loam
Bkg - 32 to 40 inches: fine sandy loam
Cg1 - 40 to 53 inches: sandy loam
Cg2 - 53 to 60 inches: sand

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: About 6 to 72 inches
Frequency of flooding: Frequent
Frequency of ponding: None

Calcium carbonate, maximum in profile: 3 percent
Salinity, maximum in profile: Nonsaline to slightly saline (1.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 20.0
Available water storage in profile: Moderate (about 6.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D

Minor Components**Unnamed, river channel**

Percent of map unit: 6 percent
Landform: Flood plains
Microfeatures of landform position: Channels

Bisgani, sandy loam

Percent of map unit: 3 percent
Landform: Flood plains
Microfeatures of landform position: Bars

Elnido, sandy loam, dark thick surface

Percent of map unit: 2 percent
Landform: Basin floors, flood plains
Microfeatures of landform position: Channels

Bisgani, loamy sand, stratified

Percent of map unit: 2 percent
Landform: Backswamps on flood plains

Elnido, sandy loam, stratified

Percent of map unit: 2 percent
Landform: Flood plains, basin floors
Microfeatures of landform position: Channels

Madera Area, California

CmtA—Columbia fine sandy loam, moderately deep and deep over temple soils, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: hk57
Elevation: 150 feet
Mean annual precipitation: 12 to 25 inches
Mean annual air temperature: 63 degrees F
Frost-free period: 230 to 340 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Columbia and similar soils: 85 percent
Minor components: 15 percent

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

Description of Columbia

Setting

Landform: Flood plains

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Talf

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Coarse-loamy alluvium derived from igneous, metamorphic and sedimentary rock

Typical profile

H1 - 0 to 14 inches: fine sandy loam

H2 - 14 to 36 inches: fine sandy loam

H3 - 36 to 41 inches: stratified sand to silt loam

H4 - 41 to 60 inches: clay loam

Properties and qualities

Slope: 0 to 1 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Somewhat poorly drained

Runoff class: Very low

Capacity of the most limiting layer to transmit water (Ksat):

Moderately low to moderately high (0.06 to 0.20 in/hr)

Depth to water table: About 0 inches

Frequency of flooding: Rare

Frequency of ponding: None

Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water storage in profile: Moderate (about 7.3 inches)

Interpretive groups

Land capability classification (irrigated): 2w

Land capability classification (nonirrigated): 4w

Hydrologic Soil Group: A/D

Minor Components

Temple

Percent of map unit: 10 percent

Landform: Flood plains

Riverwash

Percent of map unit: 5 percent

Landform: Channels

W—Water

Map Unit Composition

Water: 100 percent

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

Description of Water

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8

Data Source Information

Soil Survey Area: Fresno County, California, Western Part

Survey Area Data: Version 10, Oct 1, 2015

Soil Survey Area: Madera Area, California

Survey Area Data: Version 9, Sep 30, 2015

Appendix D

Biological Resources Report



LIVE OAK ASSOCIATES, INC.

an Ecological Consulting Firm

**RED TOP CONVEYANCE PROJECT
BIOLOGICAL RESOURCES REPORT
MADERA AND FRESNO COUNTIES, CALIFORNIA**



Prepared by:

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December 3, 2015

Project No. 1904-01

EXECUTIVE SUMMARY

In November of 2015, Live Oak Associates, Inc. (LOA) examined a 2-acre site in and adjacent to the San Joaquin River (SJR) in Madera and Fresno Counties for biological resources, and evaluated a pipeline project for possible impacts to such resources. The project site is located south of the State Route 152 crossing of the SJR immediately west of the intersection of Rd 1 and the Ave 18 ½ alignment. The proposed project includes the construction of a turnout on the Poso Canal and installation of an underground irrigation pipe across the SJR.

This document was prepared in order to assist the Central California Irrigation District and the Bureau of Reclamation in meeting the requirements of the California Environmental Quality Act, National Environmental Policy Act, the Clean Water Act, the state and federal endangered species acts, and miscellaneous other local, state and federal environmental regulations prior to project implementation. The information in this document was based on a review of existing literature and a reconnaissance level field survey conducted by LOA on November 9, 2015.

The project site is located in a somewhat disturbed stretch of the SJR surrounded by agricultural lands. Four land uses/biotic habitats were identified within the project site. These included ruderal, SJR channel, valley riparian, and Poso Canal. The river serves as a movement corridor for native wildlife. The river was dry during LOA's November field survey, but flows other times of the year.

The site provides unsuitable habitat for special status plant species. However, the site does provide some habitat for a few special status animal species. Special status animals potentially using habitats of the site include the Chinook salmon, steelhead, San Joaquin kit fox, and various avian species (including Swainson's hawk, white-tailed kite, northern harrier, loggerhead shrike, tricolored blackbird, and yellow-headed blackbird). Habitats of the site are marginal, at best, for the burrowing owl, and the burrowing owl is considered unlikely to occur on site under present conditions; however, should California ground squirrels colonize the site at some point in the future, burrowing owls could potentially follow. Other special status wildlife species are not expected to occur on the project site, except for occasional wildlife foraging on it during migration or dispersal movements. Waters subject to the jurisdiction of the U.S. Army Corps of Engineers, California Department of Fish and Wildlife, the Central Valley Regional Water Quality Control Board, and the State Lands Commission were present within the project site.

The project would have no effect on special status plant species and a less than significant/not likely to effect on Chinook salmon, most special status wildlife species, wildlife movement corridors, designated critical habitat, essential fish habitat, and fish and wildlife habitat. The project is consistent with local ordinances protecting biological resources. While the project will not adversely affect or significantly impact Waters of the U.S., a Clean Water Act Nationwide permit, California Water Quality Certification, and Stream Alteration Agreement will be required. Mitigation measures are not proposed in this report nor warranted for impacts to the above biotic resources.

Potentially significant project impacts include construction-related mortality or disturbance of nesting birds (including but not limited to Swainson's hawk, white-tailed kite, loggerhead shrike, and tricolored blackbird), construction-related mortality or disturbance of the burrowing owl, construction-related mortality or disturbance of the San Joaquin kit fox, impacts to riparian habitat, and degradation of water quality downstream of the project site. An employee education program addressing avoidance and minimization measures for potentially significant biological impacts would be conducted by a qualified biologist prior to project construction. Measures appropriate for mitigating project impacts to nesting birds would include 1) pre-construction surveys for active nests during the nesting season (Feb.-Aug.), and 2) avoidance of active nests. Potential project impacts to the burrowing owl would be mitigated through pre-construction surveys for active burrows, passive relocation of burrowing owls outside of the nesting season, and/or avoidance of active burrows during the nesting season. Potential project impacts to the San Joaquin kit fox would be mitigated through pre-construction surveys for active dens and avoidance of those dens. Should riparian trees be removed as a result of project construction, replacement plantings and monitoring will reduce impacts to riparian habitat. Implementation of erosion control measures and best management practices will protect aquatic habitat of the SJR from degradation.

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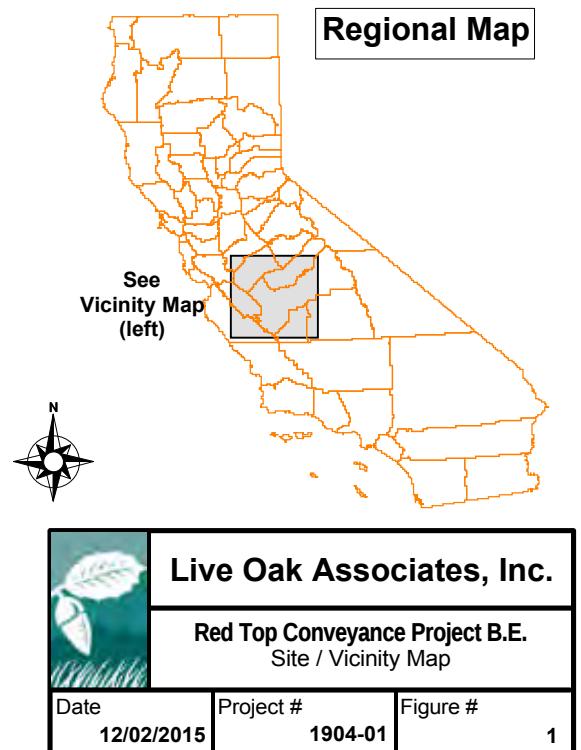
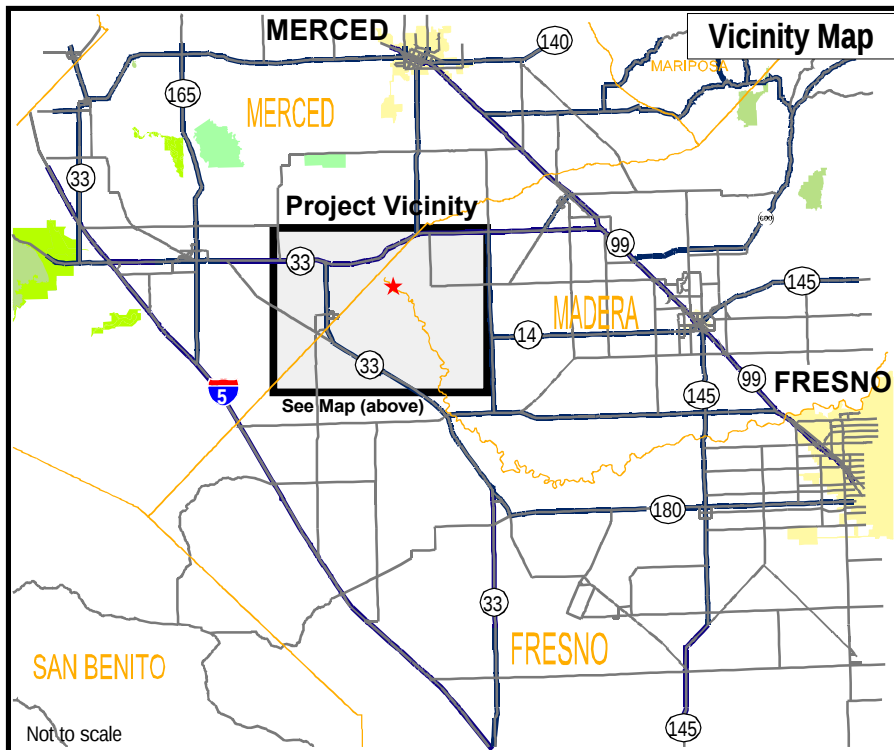
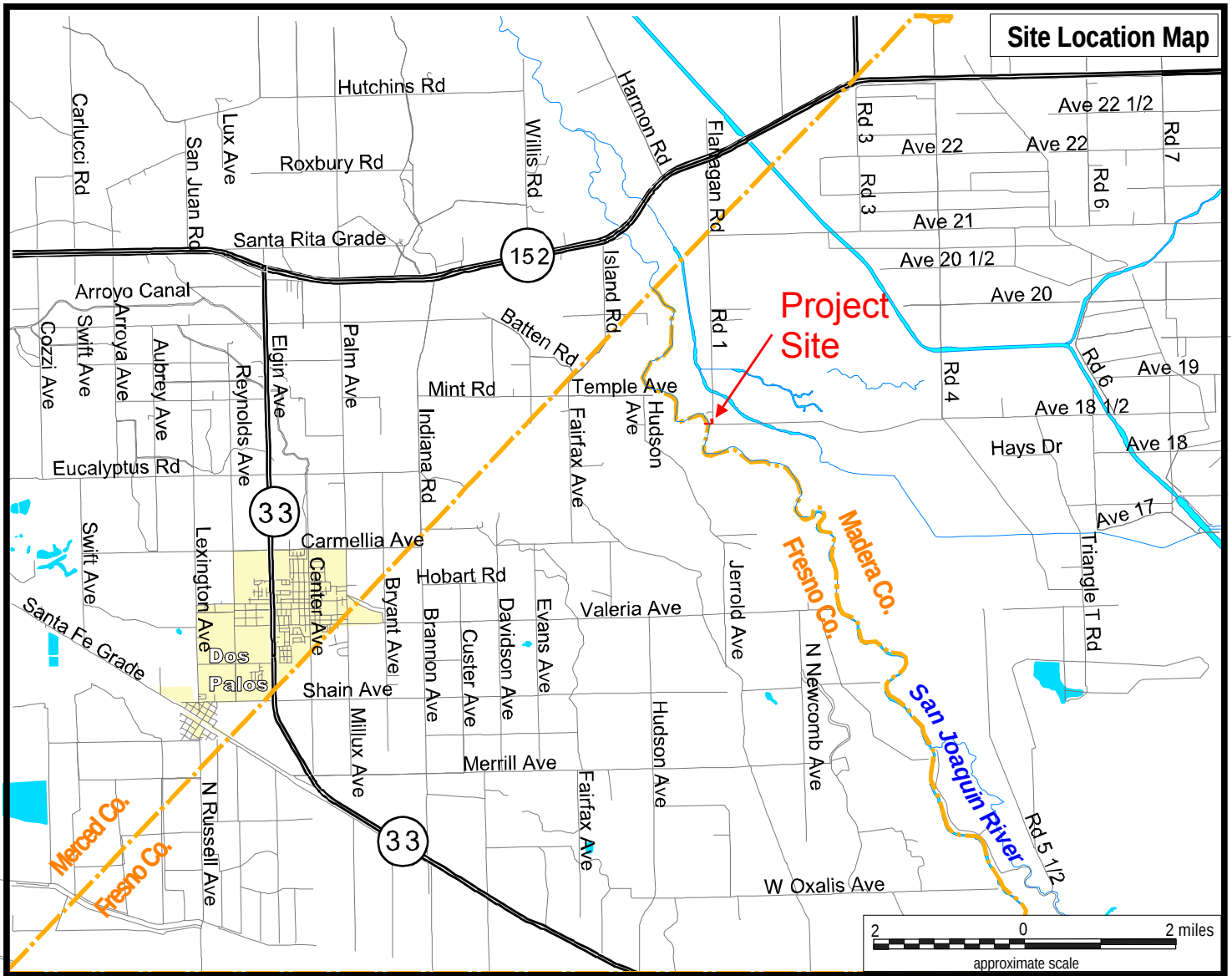
1.0 INTRODUCTION

This technical report describes the biotic resources of an approximately 2-acre site (hereafter referred to as the “project site” or “site”) in Madera and Fresno Counties upon which a turnout from Poso Canal and pipeline crossing of the San Joaquin River (SJR) are proposed. The project site is located south of the State Route 152 crossing of the SJR immediately west of the intersection of Road 1 and the Avenue 18 ½ alignment (Figure 1). The project site is located on Assessor Parcel Numbers 020-200-001 and 001-090-03T in Section 2 of Township 11 South, Range 13 East, M. D. B. & M., on the *Santa Rita Bridge* U.S.G.S quadrangle (Figure 2).

1.1 PROJECT DESCRIPTION

The proposed project will convey surface water from Central California Irrigation District’s (CCID) Poso Canal across the SJR to areas in Western Madera County. The water will be conveyed to farmers on the east side of the river and to future and existing grower recharge basins through existing pipelines and turnouts. The project consists of a new pipeline crossing of the SJR described as the Vlot-Triangle T crossing, and a new cast in place concrete box turnout on the Poso Canal. The pipeline will connect the new turnout at the Poso Canal to an existing pump stand on the other side of the SJR. The project will entail installing a 36-inch single wall reinforced concrete pipe or mortar lined and coated steel pipeline from a 36-inch stub on a 48 inch by 48 inch cast in place concrete box turnout in the Poso Canal, across the SJR where it will connect to an existing pump station and conveyance facilities running east along the mid-section line of the section. The connecting pipeline will be approximately 452 feet in length and will be placed across the river using an open cut trench. If feasible the trench will be oriented to avoid the removal of any trees. The pipeline will be buried with a minimum cover of six feet below the river bed. All work in the river bed will occur when the river is dry.

Construction of the crossing will require temporary disturbance of the channel area by the clearing of riparian shrubs and possibly some trees. A geotechnical investigation will be conducted within the proposed alignment prior to construction to determine the soils profiles, associated soils types and groundwater elevations. The investigation report will make recommendations regarding placement of fills in the embankments and pipe protection measures across the river corridor.



After construction is completed, the disturbed area will be graded back to the original contour and will be reseeded with a seed mixture of native plants, approved by a qualified biologist.

The width of the temporary disturbed area for excavating the trench and installing the pipeline will be approximately 80 feet. The total temporary disturbed area for the pipe crossing across the SJR from the Poso Canal Turnout to the existing pump station will be approximately 0.83 acres. The total permanent impacts will be approximately 16 square feet, associated with the cast in place turnout on Poso Canal. The total temporary disturbed area within the ordinary high water mark of the SJR will be approximately 0.18 acres.

Construction equipment is expected to include the use of graders, compacters, backhoes, excavators, forklifts, skid steers, front-end loaders, generators, water trucks and materials and equipment hauling trucks. Construction will be conducted during daylight hours, Monday through Friday, excluding holidays. Project construction will include removal of vegetation, trenching, placing of pipeline, backfilling and compaction. Post construction activities will include site clean-up and re-vegetation of crossings.

It is anticipated that project construction will require 10-12 construction workers. Approximately one daily construction equipment delivery truck is anticipated and 20 construction worker trips per day are anticipated during the two months of construction, totaling an average of 11 construction vehicle round trips per day.

The construction staging area for the project will be entirely outside of the SJR and have an area of 0.95 acres. The staging area will be located to the northeast of the proposed pipeline.

The proposed project would require approximately 0.15 acre-feet of water for dust control and trench compaction during the construction period.

The proposed project is not anticipated to generate large amounts of construction waste since the majority of construction activities would be limited to trenching. Excess material from trenching would be stockpiled temporarily within the staging area. This material will be hauled off for use by the District or contractors for other projects.

1.2 REPORT OBJECTIVES

Projects such as the Red Top Conveyance Project can potentially damage or modify biotic habitats used by sensitive plant and wildlife species as defined by state and regulatory agencies. Furthermore, the proposed project may be regulated by state and/or federal agencies, subject to provisions of the California Environmental Quality Act (CEQA) and/or National Environmental Policy Act (NEPA), and/or and covered by policies of the County of Madera and Fresno General Plans. This report addresses issues related to: 1) sensitive biotic resources occurring on the project site; 2) the federal, state, and local laws regulating such resources; and 3) mitigation measures that may be required to reduce the magnitude of anticipated impacts and/or comply with permit requirements of state and federal resource agencies. As such, the objectives of this report are to:

- Summarize all site-specific information related to existing biological resources.
- Make reasonable inferences about the biological resources that could occur onsite based on habitat suitability and the proximity of the site to a species' known range.
- Summarize all state and federal natural resource protection laws that may be relevant to possible future site development.
- Identify and discuss project impacts to biological resources that may occur on the site within the context of CEQA and NEPA guidelines and relevant state and federal laws.
- Identify avoidance and mitigation measures that would reduce the magnitude of project impacts in a manner consistent with the requirements of CEQA and NEPA and that are generally consistent with recommendations of the resource agencies regulating affected biological resources.

1.3 STUDY METHODOLOGY

The impact analysis, as discussed in Section 3.0 of this report, is based on the potential and known biological resources of the project site as discussed in Section 2.0. Information sources used in the preparation of this analysis included: the *California Natural Diversity Data Base* (CNDDB) (CDFW 2015a); the online *Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2015); current listings from *Special Animals* (CDFW 2015b) and *Special*

Vascular Plants, Bryophytes, and Lichens (CDFW 2015c); *The Manual of California Vegetation* (Sawyer, Keeler-Wolf, and Evens 2009); biological studies conducted by Live Oak Associates, Inc. (LOA) on other properties along the SJR; and additional manuals and references related to plants and animals of California's Central Valley. Supplemental information was gathered in the field by LOA biologist Jeff Gurule on November 9, 2015. This survey consisted of walking the project site in order to identify principal land uses and habitats of the site, noting each habitat's constituent plants and animals, and mapping habitat suitable for special status species and other sensitive biological resources.

Detailed surveys for sensitive biological resources (including special status species) were not conducted for this study. The level of effort was, however, sufficient to locate and establish the general extent of habitat suitable for special status species that might be present on the site and adjacent lands.

2.0 EXISTING CONDITIONS

2.1 TOPOGRAPHY

The project site is located within the interior of the San Joaquin Valley. The topography of the site is concaved within the SJR channel and flat outside the channel. Site elevations vary from approximately 107 feet National Geodetic Vertical Datum (NGVD) at the low point of the channel to approximately 120 feet NGVD at the area of the site east of the SJR channel.

2.2 CLIMATE

The project site, like most of California west of the Sierra Nevada, experiences a Mediterranean climate. Summers are hot and dry. Winters are cool and moist. Average annual precipitation in the general vicinity of the site is approximately 15 inches, most of which falls as rain between the months of October and April. Precipitation amounts vary considerably from year to year. During drought years, rainfall can be as little as 6-7 inches. During wet winters, rainfall can exceed 20 inches.

2.3 HYDROLOGY

The hydrology of the stretch of SJR within the site and in the vicinity has been substantially altered by decades of agricultural activity in the region that have resulted in the removal of riparian vegetation, river channelization, and the installation of dams and other irrigation infrastructure. Currently, the river is contained by large levees on each side of the channel. The river bottom consists of an intermittent ordinary high water channel on the east side of the channel and an adjacent flood plain on the west side of the channel. Google Earth historic aerial photography from 1998 to 2015 shows inundation within ordinary high water during the winter, spring, and some summers.

The majority of the site is located outside of, but immediately adjacent to, the SJR channel. Precipitation in upland areas of the site either percolates into the soil, or during the most intense storms drains from the site as sheet flow into the SJR.

2.4 SOILS

Three soil mapping units from two soil series were identified within the project site (California Soil Resources Lab 2008) (Table 1). All three soils are considered hydric. Hydric soils are soils that are saturated, flooded, or ponded long enough to develop anaerobic conditions in the upper part; under sufficiently wet conditions, they support the growth and regeneration of hydrophytic vegetation (USDA Soil Conservation Service 1985, as amended by the National Technical Committee for Hydric Soils in December 1986).

The entire site is located on alluvium transported from the Sierra Nevada. Alluvium of the site consists of sands and gravels derived from granite and some older metamorphic and sedimentary rock. This alluvium has accumulated on site since the time of the Pleistocene from overbank flooding of the San Joaquin River.

TABLE 1. SOILS OF THE PROJECT SITE.				
Soil Mapping Unit	Map Unit Symbol	Parent Material	Drainage Class	Hydric
<i>Fresno County, California</i>				
Elnido sandy loam, drained, 0 to 1 percent slopes	320	Alluvium derived from igneous rock	Poorly drained	Yes
Bisgani-Elnido association, 0 to 1 percent slopes	941	Alluvium derived from igneous rock	Poorly drained	Yes
<i>Madera County, California</i>				
Columbia fine sandy loam, moderately deep and deep over temple soils, 0 to 1 percent slopes	CmtA	Coarse-loamy alluvium derived from igneous, metamorphic and sedimentary rock	Somewhat poorly drained	Yes

2.5 SURROUNDING LANDS

The project site occurs within a region dominated by agricultural land uses and is immediately bordered by the SJR and agricultural lands. Human activities have substantially modified the project site and adjacent lands from historic conditions. The biotic habitats of the site and surrounding lands retain little to no elements of the native habitats once present.

2.6 BIOTIC HABITATS/LAND USES

Four land uses/biotic habitats were identified within the project site. These included ruderal, SJR channel, valley riparian, and Poso Canal (Figure 3). A list of the vascular plants observed in the project site is included in Appendix A. A list of terrestrial vertebrates using, or potentially using, the project site is included in Appendix B. Selected photographs of the site are included in Appendix C.

2.6.1 Ruderal

The majority of the project site consists of ruderal areas in the form of an agricultural staging area, dirt roads, and barrier ditches. Vegetation within ruderal areas was sparse and primarily comprised herbaceous non-native weeds. Grasses and forbs found in ruderal areas of the site include Bermuda grass (*Cynodon dactylon*), bractscale (*Atriplex serenana* var. *serenana*), mallow (*Malva* sp.), heliotrope (*Heliotropium curassavicum*), and horehound (*Marrubium vulgare*), among others. Trees and shrubs were absent from this land use area.

Ruderal areas of the type observed on the project site do not provide significant habitat for native terrestrial vertebrate species. However, those species occurring in natural biotic habitats elsewhere on the project site, as described below, no doubt pass through the site's ruderal areas occasionally while foraging. Reptile species potentially foraging in this area include the side-blotched lizard (*Uta stansburiana*). Avian species potentially foraging in this habitat would include savannah sparrows (*Passerculus sandwichensis*), American pipits (*Anthus rebescens*), mourning doves (*Zenaida macroura*), western scrub jays (*Aphelocoma californica*), and common ravens (*Corvus corax*). Mammalian species likely to regularly forage in this area include the Audubon's cottontail (*Sylvilagus audubonii*) and the Botta's pocket gopher (*Thomomys bottae*) (burrows observed).

2.6.2 SJR Channel

The SJR channel within the project site is contained by levee banks on either side of the river channel. The river channel was dry during the November field investigation. The river channel

Legend

 Approximate Project Boundaries

Biotic Habitats and Land Uses

 Ruderal

 SJR Channel

 Valley Riparian

 Poso Canal



Live Oak Associates, Inc.

Red Top Conveyance Project
Biotic Habitats and Land Uses

Date

12/02/2015

Project #

1904-01

Figure #

3

0 100 200 400 Feet

Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, Swisstopo, and the GIS User Community

consists of a low flow channel at the eastern edge that experiences periodic flows. The remainder of the channel consists of an elevated upland floodplain. Grass species identified in this habitat include soft chess brome (*Bromus hordeaceus*), riggut brome (*Bromus diandrus*), red brome (*Bromus madritensis rubens*), and saltgrass (*Distichlis spicata*). Common forbs identified in this area include black mustard (*Brassica nigra*), rough cocklebur (*Xanthium strumarium*), fiddleneck (*Amsinckia sp.*), telegraph weed (*Heterotheca grandiflora*), and Jersey cudweed (*Pseudognaphalium luteoalbum*). A few shrubby specimens of Goodding's black willow (*Salix gooddingii*) and sandbar willow (*Salix exigua*) also occurred within the SJR channel.

Fish species were absent from the project site at the time of the field survey due to the absence of water. Some fish species may occur on the project site as transients when the river is flowing. These potential transient fish species may include striped bass (*Morone saxatilis*) and juvenile spring-run and/or fall-run Chinook salmon (*Oncorhynchus tshawytscha*). Other fish species such as green sunfish (*Lepomis cyanellus*), largemouth bass (*Micropterus salmoides*), various catfish species, and common carp (*Cyprinus carpio*) may populate the channel, when water is present, from upstream perennial waters.

Amphibians such as western toads (*Anaxyrus boreas*), and Pacific treefrogs (*Pseudacris regilla*) may breed in river shallows and isolated pools when water is present. Common garter snakes (*Thamnophis sirtalis*) may forage in this habitat for amphibians, small birds, and small mammals during wet times of year. Other common reptile species likely to forage and seek cover on the site during dry times of the year include western fence lizards (*Sceloporus occidentalis*), side-blotched lizards, western whiptails (*Aspidoscelis tigris*), gopher snakes (*Pituophis melanoleucus*), common kingsnakes (*Lampropeltis getulus*), and western rattlesnakes (*Crotalus viridis*).

A variety of bird species could occur within the SJR channel due to the alternating dry and wet river regime. Many of these species seek the cover of the mixed riparian woodland, but forage in and over the river channel. Avian species likely to utilize this habitat include black phoebes (*Sayornis nigricans*) (observed), red-winged blackbirds (*Agelaius phoeniceus*), great blue

herons (*Ardea herodias*), green herons (*Butorides striatus*), great egrets (*Ardea albas*), mourning doves, western scrub jays, and killdeer (*Charadrius vociferus*), among others.

Mammalian use of this habitat would vary depending on river flows across the site. Rodents are the most abundant mammals within this habitat. Small mammal burrows were observed in the upland flood plain of the SJR channel and Audubon's cottontail droppings were observed throughout the channel. It is expected that the California vole (*Microtus californicus*) would also inhabit this portion of the project site. A number of mammalian predators may regularly forage or move through the channel from time to time, including the gray fox (*Urocyon cinereoargenteus*), bobcat (*Lynx rufus*), striped skunk (*Mephitis mephitis*), raccoon (*Procyon lotor*), and coyote (*Canis latrans*). Various bat species likely forage for flying insects over the open area of the river channel as well.

2.6.3 Valley Riparian

Valley riparian habitat within the project site is restricted to the banks of the SJR. Relatively high species diversity occurs in the riparian habitat of the site. Trees identified in the riparian areas of the site included Goodding's black willow and Oregon ash (*Fraxinus latifolia*). Shrubs and vines observed within the valley riparian habitat included sandbar willow, buttonwillow (*Cephalanthus occidentalis*), California rose (*Rosa californica*) and California blackberry (*Rubus ursinus*). Herbaceous vegetation consisted of poison hemlock (*Conium maculatum*), mugwort (*Artemisia douglasiana*), and milk thistle (*Silybum marianum*).

Riparian habitats along rivers provide habitat value for a number of animal species that rely on the moisture-loving vegetation for food and cover. Amphibians likely to occur in this habitat of the project site include western toads and Pacific treefrogs. Reptiles likely to occur in this habitat would be western fence lizards, common gartersnake, and striped racer (*Coluber lateralis*).

Riparian areas also attract a large number of avian species that seek cover, forage, and nest in the various canopy layers. Resident species expected in this habitat included the western scrub-jay (observed), loggerhead shrike (*Lanius ludovicianus*) (observed), Nuttall's woodpecker (*Picoides nuttallii*), song sparrow (*Melospiza melodia*), common yellowthroat (*Geothlypis*

trichas), lesser goldfinch (*Spinus psaltria*), and black phoebe (observed). Resident raptors expected in this habitat include red-shouldered hawks, red-tailed hawks (*Buteo jamaicensis*), Cooper's hawks (*Accipiter cooperii*), and great-horned owls (*Bubo virginianus*). Riparian woodlands are of particular importance to various migrant birds. Some, like the white-crowned sparrow (*Zonotrichia leucophrys*), yellow-rumped warbler (*Setophaga coronata*), and dark-eyed junco (*Junco hyemalis*) arrive on site in late September or early October and remain until April, at which time they return to their breeding habitats in the Sierra Nevada Mountains or in various locations of the northern United States. Summer migrants expected to breed in riparian habitats of the study area include Bullock's orioles (*Icterus bullocki*), western wood-pewee (*Contopus sordidulus*), and western kingbird (*Tyrannus verticalis*), among others. Riparian corridors, such as those found along the San Joaquin River, provide important temporary cover and foraging opportunity for other migrating birds.

Riparian habitat of the project site is likely used by smaller mammals such as the striped skunk, raccoon, deer mouse (*Peromyscus maniculatus*), house mouse (*Mus musculus*), and ornate shrew (*Sorex ornatus*) for cover and foraging. Larger mammals such as the gray fox and bobcat may utilize riparian habitats of the site for cover.

2.6.4 Poso Canal

The Poso Canal is a regularly inundated irrigation canal that ultimately receives water from the SJR at the Mendota Pool approximately 20 miles upstream of the project site. The canal runs parallel to the SJR in the vicinity of the project site and is dewatered approximately every other year between November and February. The canal is managed to prohibit vegetation growth. Therefore, the canal is largely unvegetated with only sparse wetland vegetation such as Mexican sprangletop (*Leptochloa fusca ssp. uninervia*) occurring along a narrow fringe at the water line.

The inundated areas of the canal provide little value to aquatic and terrestrial vertebrate species. No fish were observed in the canal. Fish species, if present, would likely be limited to introduced species such as mosquito fish and other exotic species. Fish populations would be unsustainable due to the periodic dewatering of the canal. Amphibian species are expected to be absent from the canal due to the steep sides, relatively strong current, and lack of vegetation.

Avian species would find little to no foraging opportunity in the canal. Some mammalian species common to other habitats of the site may utilize the canal as a source of drinking water.

2.7 SPECIAL STATUS PLANTS AND ANIMALS

Several species of plants and animals within the state of California have low populations, limited distributions, or both. Such species may be considered “rare” and are vulnerable to extirpation as the state’s human population grows and the habitats these species occupy are converted to agricultural and urban uses. As described more fully in Section 3.2, state and federal laws have provided the California Department of Fish and Wildlife (CDFW) and the U.S. Fish and Wildlife Service (USFWS) with a mechanism for conserving and protecting the diversity of plant and animal species native to the state. A sizable number of native plants and animals have been formally designated as threatened or endangered under state and federal endangered species legislation. Still others have been designated as “species of special concern” by the CDFW. The California Native Plant Society (CNPS) has developed its own lists of native plants considered rare, threatened or endangered (CNPS 2012). Collectively, these plants and animals are referred to as “special status species.”

The *California Natural Diversity Data Base* (CDFW 2015a) was queried for special status species occurrences in the nine USGS 7.5-minute quadrangles containing and surrounding the project site (*Santa Rita Bridge, Bliss Ranch, Poso Farm, Oxalis, Dos Palos, Delta Ranch, Turner Ranch, Sandy Mush, and El Nido*). The Sacramento Fish and Wildlife Office’s *Endangered Species List Generator* (USFWS 2015) was queried for federally listed species with the potential to be affected by projects in the same nine quadrangles. These species, and their potential to occur on the project site, are listed in Tables 2 and 3 on the following pages. Sources of information for this table included *California’s Wildlife, Volumes I, II, and III* (Zeiner et. al 1988-1990), *Special Animals* (CDFW 2015b), *Special Vascular Plants, Bryophytes, and Lichens* (CDFW 2015c), and *The California Native Plant Society’s Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2015).

Special status species occurrences within 3.1 miles (5 kilometers) of the project site are depicted in Figure 4 and San Joaquin kit fox (*Vulpes macrotis mutica*) occurrences within 10 miles of the project site are depicted in Figure 5.