Environmental Assessment/Initial Study

Water Year 2016-2026 Transfer and Exchange from Madera Irrigation District and Chowchilla Water District to the Red Top Area

September 2016

Mission Statements

The mission of the Department of the Interior is to protect and provide access to our Nation's natural and cultural heritage and honor our trust responsibilities to Indian Tribes and our commitments to island communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

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Abbreviations and Acronyms

ACT	San Joaquin River Settlement Act
Ag	Agriculture
BMP	Best Management Practices
CARD	California Air Resources Board
CCID	Central California Irrigation District
CEQA	California Environmental Quality Act
CDFW	California Department of Fish and Wildlife
CFR	Code of Federal Regulations
CH_4	Methane
CNDDB	California Natural Diversity Data Base
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CRHR	California Register of Historical Resources
CVP	Central Valley Project
CVPIA	Central Valley Project Improvement Act
CWD	Chowchilla Water District
DBCP	Dibromochloropropane
DMC	Delta-Mendota Canal
DWR	Department of Water Resources
EA	Environmental Assessment
EFH	Essential Fish Habitat
EPA	Environmental Protection Agency
FMMP	Farmland Mapping and Monitoring Program
FWCA	Fish and Wildlife Coordination Act
GHG	Greenhouse Gases
ITA	Indian Trust Assets
LOA	Live Oak Associates, Inc.
MBTA	Migratory Bird Treaty Act
MID	Madera Irrigation District
NAHC	Native American Heritage Commission
NEPA	National Environmental Protection Act
NMFS	National Marine Fisheries Service
NO_2	Nitrogen Dioxide
NRDC	Natural Resources Defense Council
NRHP	National Register of Historic Places
NWR	National Wildlife Refuge
OHWM	Ordinary High Water Mark
PEIS/R	Program Environmental Impact Statement/Impact Report
RCP	Reinforced Concrete Pipe
ROD	Record of Decision
SJKF	San Joaquin Kit Fox
SJR	San Joaquin River
SJRRP	San Joaquin River Restoration Program
SJVAB	San Joaquin Valley Air Board

SJVAPCD	San Joaquin Valley Air Pollution Control District
SLCC	San Luis Canal Company
SLR	San Luis Reservoir
SSJVIC	Southern San Joaquin Valley Information Center
SWP	California State Water Project
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	California State Water Resources Control Board
WY	Water Year

Section 1 Introduction

1.1 Background

Madera Irrigation District and Chowchilla Water District

Madera Irrigation District (MID) and Chowchilla Water District (CWD), both Friant-Division Long-Term Contractors, desire to maximize the beneficial use of their water supplies by performing a ten year transfer to the Red Top Area of Madera County. The landowners of the Red Top Area understand the importance of decreasing their reliability on deep aquifer pumping and moving to the shallower groundwater above the Corcoran Clay. MID and CWD are proposing to work with local water and irrigation districts on a willing buyer/willing seller basis so that local landowners of the Red Top Area can purchase surface water supplies to help augment their groundwater pumping and abate subsidence.

The goal is to annually transfer up to 10,000 acre feet of surface water supplies into the Red Top Area. The water to be transferred could be a portion of MID's or CWD's water supplies that exceed their current demands or are physically incapable of being delivered to their districts. In addition, MID and CWD would meet existing obligations of their respective Districts to the Red Top Area. Potential water supplies include recaptured San Joaquin River Restoration Program Flows, described below, and other Central Valley Project (CVP) supplies accessible to MID and CWD <u>including water from conservation and fallowing water programs</u> authorized pursuant to the San Joaquin River Settlement. Further, other sources could include conserved and fallowed water programs pursuant to the "Water Transfer Program for the San Joaquin River Exchange Contractors Water Authority, 2014 – 2038." Final EIS/EIR January 2013; Record of Decision July 2013.

Recaptured Restoration flows ~~that~~ would be made available to Friant Division Long-Term Contractors, specifically to MID and CWD in this instance, through direct diversion ~~to~~ <u>at</u> the Mendota Pool or in San Luis Reservoir routed through the DMC to the Mendota Pool. In addition, some SJRRP Flows that cannot be conveyed down the San Joaquin River may be ~~directly recaptured and~~ made available to MID and/or CWD ~~for recirculation~~ at the Mendota Pool through the Central California Irrigation District (CCID) Main Canal into the Poso Canal. Other water that could be made available under this action could include MID and/or CWD water supplies, including CVP water, made available under a willing seller/willing buyer arrangement. Any future actions in addition to the Proposed Action/Project will be subject to supplemental environmental analysis, as necessary.

Subsidence

The transition from pasture or fallowed land to row and permanent crops adjacent to the San Joaquin River has created an increased groundwater pumping demand in an area that is not, at this time, serviced by an irrigation district or alternate surface water supply. This demand has

resulted in recent increases in land subsidence along the river (Figure 1-1). Studies by the U.S. Army Corps of Engineers, California Department of Water Resources, Reclamation, and the U.S. Geological Survey indicate that subsidence rates have been more than 0.5 feet per year in and around the most serious areas of concern. This increased subsidence poses difficulties for local, state, and federal agencies with existing or planned infrastructure in the area. For example, irrigation districts with water conveyance and diversion facilities along the San Joaquin River may have increased expenses associated with new capital construction and the associated operation and maintenance of such facilities. These new features might be needed to deal with the loss of conveyance capacity due to local subsidence. The local levee district has experienced a loss in overall levee freeboard within ~~the federal flood control project in~~ and along the Eastside Bypass as a result of subsidence; thus decreasing overall flood conveyance capacities. Finally, the ~~San Joaquin River Restoration Program (~~SJRRP~~)~~ will have to take into account ~~for~~ subsidence in the construction of projects, which may be costly and increase long-term maintenance commitments to account for potentially unanticipated changes in topographic elevations.

Aside from the Proposed Action/Project described in this environmental document, it is also important to note that other local actions within the San Joaquin Valley are also taking place to try and abate subsidence and minimize impacts and risks associated with its effects. The San Joaquin River Exchange Contractors have taken a proactive approach in dealing with the local subsidence in the following manner:

- Gathered two local landowner groups east of the San Joaquin River to self-fund groundwater and geological studies. The two groups are identified as the Red Top Area Farmers and the Washington Avenue Farmers.
- Received buy-in to this local approach from both Madera and Merced counties. They have participated in the studies from a financial perspective and will be an active voice in potential solutions.
- Facilitated construction of on-farm distribution facilities that will allow for flexibility of conveyance of shallow groundwater in the region to reduce the reliance on pumping below the Corcoran Clay layer.
- Performed small-scale percolation studies to determine the best location and size of groundwater sinking basins. These basins will allow the local landowners to divert water from the local bypass channel during times of flood flows. This water will then percolate into the shallow groundwater aquifer where it can be stored for future pumping. The goal is to pump as much as is sustainable from the shallow aquifer as compared to the deep.

The San Joaquin River Restoration Program

In 1988, a coalition of environmental groups, led by the Natural Resources Defense Council (NRDC), filed a lawsuit challenging renewal of long-term water service contracts between the United States and Central Valley Project (CVP) Friant Division (Friant Division). After more than 18 years of litigation, *NRDC, et al., v. Kirk Rodgers, et al.*, a settlement was reached (Settlement). On September 31, 2006, the Settling Parties, including NRDC, Friant Water Users, Authority (now represented by Friant Water Authority), and the U.S. Departments of the Interior and Commerce, agreed on the terms and conditions of the Settlement, which was subsequently

approved by the U.S. Eastern District Court of California on October 23, 2006. The Settlement establishes two primary goals:

- Restoration Goal – To restore and maintain fish populations in "good condition" in the main stem of the San Joaquin River below Friant Dam to the confluence of the Merced River, including naturally reproducing and self-sustaining populations of salmon and other fish.

- Water Management Goal – To reduce or avoid adverse water supply impacts on all of the Friant Contractors that may result from the Interim Flows and Restoration Flows provided for in the Settlement.

The Secretary of the Interior is authorized and directed to implement the terms and conditions of the Settlement in the San Joaquin River Settlement Act (Act), included in Public Law 111-11. The SJRRP was established to implement the Settlement. The Implementing Agencies include: U.S. Bureau of Reclamation, U.S. Fish and Wildlife Service, National Marine Fisheries Service, State of California Department of Water Resources, and State of California Department of Fish and Wildlife.

The SJRRP Program Environmental Impact Statement/Impact Report (PEIS/R) was finalized in July 2012 and the corresponding Record of Decision (ROD) was issued on September 28, 2012 (Reclamation 2012a and 2012b). The PEIS/R and ROD analyzed at a project-level the reoperation of Friant Dam to release Interim and Restoration Flows to the San Joaquin River, making water supplies available to Friant Division long-term contractors at a pre-established rate, and the recapture of Interim and Restoration Flows at existing facilities within the Restoration Area and the Delta.

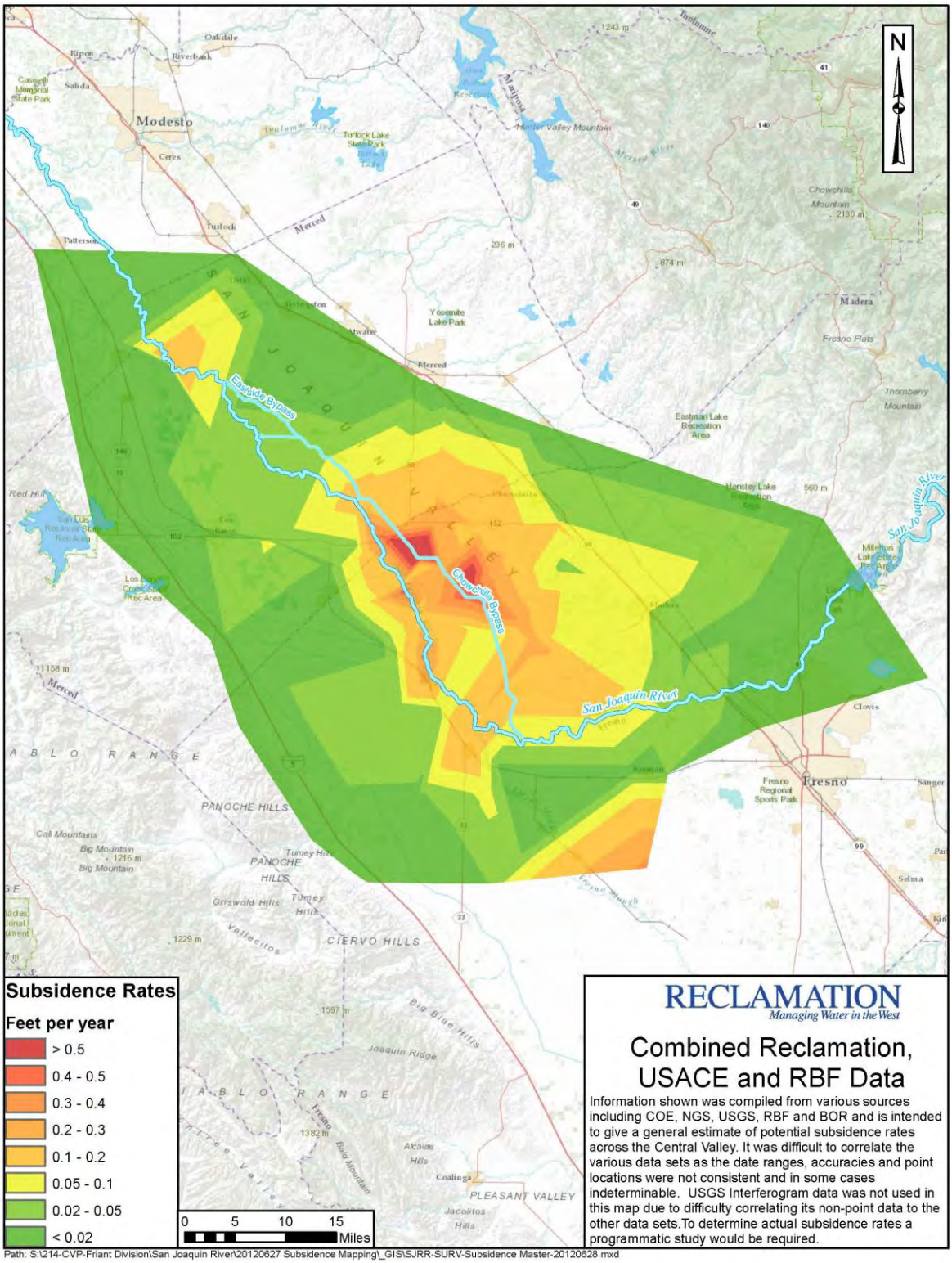

Figure 1-1- Subsidence Data in and near the San Joaquin River

1.2 Purpose and Need

As previously described, there is a need to reduce the reliance on groundwater pumping and contribute to reducing the rate of subsidence in the Red Top Area. The purpose of the Proposed Action/Project is to contribute to reducing the rate of subsidence in the Red Top Area by maximizing the beneficial use of MID and CWD's surface water supplies and contribute to achieving the Settlement Water Management Goal by recirculating recaptured Restoration Flows to the Friant long term contractors.

Incorporation of Related Environmental Documents
This Environmental Assessment/Initial Study (EA/IS) incorporates the environmental analysis performed in the Water Transfer Program for the San Joaquin River Exchange Contractors Water Authority, 2014-2038, EIS/EIR, January 2013.

This EA/IS incorporates by reference the following information from the EIS/R:

- **Chapter 4.0 – Surface Water Resources**.
- **Chapter 6.0 – Biological Resources.**
- **Chapter 11.0 – Air Quality.**
- **Chapter 12.0 – Climate Change /Greenhouse Gas Emissions.**

In addition, this ~~Environmental Assessment/Initial Study (~~EA/IS~~)~~ incorporates the environmental analysis performed in the Recirculation of Recaptured Water Year 2013-2017 San Joaquin River Restoration Program Flows Environmental Assessment, February 2013 (WY 2013-2017 Recirculation EA). The WY 2013-2017 Recirculation EA analyzes the potential environmental impacts of recirculating recaptured Interim and Restoration Flows for a five-year period utilizing existing conveyance facilities and without the addition of new facilities to recapture or recirculate released SJRRP flows from Friant Dam. This EA incorporates by reference the environmental analysis in its entirety prepared for the WY 2013-2017 Recirculation EA for water resources, land use, biological resources, cultural resources, Indian Trust Assets, socioeconomic resources, Environmental Justice, air quality, global climate change, and cumulative impacts in relation to water contracting actions and the impacts associated with the movement of water in existing facilities. However, this EA further identifies additional construction activities that are beyond the scope of the WY 2013-2017 Recirculation EA. Additionally, the WY 2013-2017 Recirculation EA will be ~~set to be~~ re-evaluated, extended, or will expire after February 28, 2017~~8~~. The SJRRP is currently working to create a long-term plan and corresponding environmental documentation for the recirculation of recaptured Restoration Flows. For the Proposed Action/Project presented in this EA, the environmental analysis for the portions of the affected environment and environmental consequences from the WY 2013-2017 Recirculation EA are summarized in the corresponding resource area analysis provided in this EA, where applicable.

The SJRRP Program Environmental Impact Statement/Impact Report (PEIS/R) was finalized in July 2012 and the corresponding Record of Decision (ROD) was issued on September 28, 2012. The PEIS/R and ROD analyzed at a project-level the reoperation of Friant Dam to release Interim and Restoration Flows to the San Joaquin River, making water supplies available to

Friant Division long-term contractors at a pre-established rate, and the recapture of Interim and Restoration Flows at existing facilities within the Restoration Area, lower San Joaquin River, and the Delta. The PEIS/R and ROD also includes program-level actions, which are identified as actions that require the completion of additional analysis pursuant to NEPA and/or CEQA, as appropriate. One of the program-level actions identified in the document includes Settlement Paragraph 16(a) actions for the recirculation of recaptured Interim and Restoration Flows. The PEIS/R states that Reclamation will monitor and report the quantity and timing of Interim and Restoration Flows that are available for recirculation to the Friant Division long-term contractors. The PEIS/R acknowledges that additional analysis for NEPA and/or CEQA will be needed in the future for the long-term recirculation plan, which may include modifications to facilities or the construction of new facilities. The PEIS/R and ROD also anticipate that the long-term recirculation plan may require additional exchange agreements and negotiations with water users. This EA incorporates by reference the following information from the PEIS/R:

- **Chapter 3.0 - Considerations for Describing the Affected Environment and Environmental Consequences**. This EA incorporates the analysis and assumptions presented in the chapter. Specifically, analysis of the Study Area for the PEIS/R, the explanation of significance criteria, impact comparisons, impact levels, and mitigation measures are incorporated into the contents of this EA.

- **Chapter 4.0 – Air Quality.** This EA incorporates the analysis performed to assess impacts related to program-level actions, which would include stationary sources associated with the recirculation of water. The assessment of impacts and ultimate determinations, all being less than significant for the operation of the SJRRP, are incorporated.

- **Chapter 5.0 – Biological Resources - Fisheries.** This EA incorporates the analysis performed in order to support the analysis for the SJRRP. The incorporated material from the PEIS/R also includes the quantitative and qualitative assessments of aquatic species impacts as a result of the implementation of the SJRRP, specifically related to physical processes such as water temperatures, water quality, flow patterns, fish habitat conditions, pollutant discharge and mobilization, turbidity, diversions and entrainment, predation, and food web support in the Sacramento-San Joaquin Delta. The assessment of impacts and determinations are incorporated.

- **Chapter 6.0 – Biological Resources – Vegetation and Wildlife.** This EA incorporates the analysis performed in the PEIS/R related to the assessment of sensitive species and habitats in or near the Proposed Action/Project area, including the CVP/SWP water service areas. The incorporated material includes the investigation of the impacts of the SJRRP on the alteration of riparian habitat, changes in invasive plant abundance and distribution, or alteration of special-status plant species or habitats between the Merced River and the Delta or in the Delta.

- **Chapter 7.0 – Climate Change and Greenhouse Gas Emissions.** This EA incorporates by reference the discussion of potential changes related to the implementation of the SJRRP. NEPA and CEQA standards related to climate change analysis varies greatly and

the PEIS/R analysis incorporates the more stringent State of California measures to analyze and model greenhouse gas emissions. For project- level actions analyzed in the PEIS/R, it was found that there would be potentially significant and unavoidable impacts related to increased flow releases, which in turn could cause additional traffic from recreational visitors driving to the San Joaquin River and also by increased groundwater pumping and changes in the CVP/SWP energy generation and consumption. This is related to a long-term impact of the SJRRP's flow releases, which could result in an increased use of groundwater pumps due to changes in surface water availability. While 80-90 percent of groundwater pumps in the Friant Division are electric, the remaining additional diesel-powered pumping could result in increased greenhouse gas emissions. The impacts from the project-level implementation related to operations greenhouse gas emissions and the discussion of recapture of flows through the existing facilities in the Restoration Area and the Delta from the PEIS/R are thereby incorporated by reference into this document.

- **Chapter 12.0 – Hydrology – Groundwater.** The entirety of the PEIS/R chapter is incorporated into this EA. The chapter describes current and historical conditions and explains the aquifer regions surrounding the San Joaquin River, many of which suffer from groundwater overdraft, land subsidence, and water quality concerns. This EA also incorporates the discussion related to the changes and impacts associated with the implementation of the SJRRP in relation to changes in groundwater levels and quality in the CVP/SWP water service areas. Generally, both the groundwater levels and groundwater quality impacts are anticipated to be potentially significant and unavoidable in association with the reduction of water supply to the Friant Division long-term contractors. This EA addresses a ten-year action that is aimed at abating additional groundwater pumping within an area adjacent to the San Joaquin River. The proposed action in this EA would work to limit or reduce land subsidence that is addressed in the PEIS/R.

- **Chapter 13.0 – Hydrology – Surface Water Supplies and Facilities Operations**. This EA incorporates by reference the entirety of this PEIS/R chapter. This chapter outlines the operations for water deliveries, storage, and other relevant information related to the CVP and SWP and the impacts from implementation of the SJRRP. The chapter defines the impacts related to Delta operations and their interrelation to the SJRRP at a project-level of analysis.

- **Chapter 16.0 – Land Use Planning and Agricultural Resources.** This EA incorporates by reference the analysis performed to support the findings in Impact LUP-8: *Substantial Diminishment of Agricultural Land Resource Quality and Importance Because of Altered Water Deliveries*. As described in this EA in the section on land use, no long-term changes are anticipated as a result of this action.

- **Chapter 26.0 – Cumulative Impacts.** This EA incorporates by reference the discussion of the effects of the SJRRP in relation to past, present, and reasonably foreseeable future actions, specifically in the CVP/SWP water service area. This includes discussions of planned actions associated with the collective CALFED Water Resources Projects, other

water resource projects, resource management plans and programs, and the related impact analysis from the SJRRP on cumulative air quality, fisheries, vegetation and wildlife, groundwater, surface water supplies and facilities operations, surface water quality, and land use planning.

The PEIS/R analyzes ~~at a program-level~~, the potential recapture of SJRRP Flows at several diversion locations. These locations include existing facilities: in the Delta; in the San Joaquin River at the Banta-Carbona Irrigation District facility and the West Stanislaus Irrigation District facility downstream of the Stanislaus River confluence; at the Patterson Irrigation District facility between the Tuolumne and Merced River confluences; and, within the San Joaquin River Restoration Area (between Friant Dam and the confluence of the Merced River) which includes Mendota Pool at the downstream end of Reach 2B, the Lone Tree Unit of the Merced National Wildlife Refuge (NWR) (Lone Tree Unit) in the Eastside Bypass Reach 2, and the East Bear Creek Unit of the San Luis NWR (East Bear Creek Unit) in the Eastside Bypass Reach 3. Recirculation is subject to available capacity within the CVP and/or the SWP storage and conveyance facilities, including the Jones and Banks pumping plants, California Aqueduct, DMC, San Luis Reservoir (SLR) and related pumping facilities, and other facilities of CVP/SWP contractors. Available capacity is capacity that is available after all statutory and contractual obligations are satisfied to existing water service or supply contracts, exchange contracts, settlement contracts, transfers, or other agreements involving or intended to benefit CVP/SWP contractors served through CVP/SWP facilities.

Relation of Proposed Action to Settlement
The Water Management Goal of the Settlement and Act includes a requirement for the development and implementation of a plan for recirculation, recapture, reuse, exchange or transfer of interim flows for the purpose of reducing or avoiding impacts to water deliveries to all of the participating Friant Contractors. Paragraph 16 of the Settlement states:

16. In order to achieve the Water Management Goal, immediately upon the Effective Date of this Settlement, the Secretary, in consultation with the Plaintiffs and Friant Parties, shall commence activities pursuant to applicable law and provisions of this Settlement to develop and implement the following:

(a) A plan for recirculation, recapture, reuse, exchange or transfer of the Interim Flows and Restoration Flows for the purpose of reducing or avoiding impacts to water deliveries to all of the Friant Contractors caused by the Interim Flows and Restoration Flows. The plan shall include provisions for funding necessary measures to implement the plan. The plan shall:

(1) ensure that any recirculation, recapture, reuse, exchange or transfer of the Interim Flows and Restoration Flows shall have no adverse impact on the Restoration Goal, downstream water quality or fisheries;
(2) be developed and implemented in accordance with all applicable laws, regulations and standards. The Parties agree that this Paragraph 16 shall not be relied upon in connection with any request or proceeding relating to any

increase in Delta pumping rates or capacity beyond current criteria existing as of the Effective Date of this Settlement;
(3) be developed and implemented in a manner that does not adversely impact the Secretary's ability to meet contractual obligations existing as of the Effective Date of this Settlement; and
(4) the plan shall not be inconsistent with agreements between the United States Bureau of Reclamation and the California Department of Water Resources existing on the Effective Date of this Settlement, with regard to operation of the CVP and State Water Project.

~~This EA/IS analyzes the environmental effects of completing the transfer of water from MID and/or CWD, both Friant Contractors, to the Red Top Area. The environmental effects of the SJRRP long-term recapture and recirculation plan will be analyzed in the Long-term Recapture and Recirculation of San Joaquin River Restoration Program Flows EIS as the Plan is further developed.~~

The environmental effects of the SJRRP long-term recapture and recirculation plan will be analyzed in the Long-term Recapture and Recirculation of San Joaquin River Restoration ~~Program~~ Flows EIS, ~~this plan~~ which is expected to be finalized in 2018. This EA/IS was prepared to analyze the environmental effects of completing the transfer of water from MID and/or CWD, both Friant Contractors, to the Red Top Area, independent of the Long-term Recapture and Recirculation of San Joaquin River Restoration Program Flows EIS.

1.3 Reclamation's Legal and Statutory Authorities and Jurisdiction Relevant to the Proposed Federal Action

Several Federal laws, permits, licenses and policy requirements have directed, limited, or guided the analysis in this EA/IS, including the following as amended, updated, and/or superseded:

- Stipulation of Settlement in *NRDC, et al., v. Kirk Rodgers, et al.*,
- San Joaquin River Restoration Settlement Act, included in Public Law 111-11, the Omnibus Public Land Management Act of 2009,
- Central Valley Project Improvement Act (Public Law 102-575),
- Long-Term Water Service Contracts for Friant Division,
- Title XXXIV Central Valley Project Improvement Act (CVPIA), October 30, 1992, Section 3405(a),
- Reclamation Reform Act, October 12, 1982,
- Reclamation's Interim Guidelines for Implementation of Water Transfers under Title XXXIV of Public Law 102-575 (Water Transfer), February 25, 1993,
- Reclamation and United States Fish and Wildlife Service (USFWS) Regional, Final Administrative Proposal on Water Transfers April 16,1998,
- Reclamation's Mid-Pacific Regional Director's Letter entitled "*Delegation of Regional Functional Responsibilities to the CVP Area Offices - Water Transfers*", March 17, 2008, and

- National Marine Fisheries Service and U.S. Fish and Wildlife Service Biological Opinion on the Coordinated Operations of the CVP and SWP, 2008
- National Marine Fisheries Service CVP/SWP Operations BO, 2009
- California State Water Resources Control Board, Division of Water Rights Order, Permits 11885, 11886, and 11887 and License 1986, October 21, 2013.
- San Joaquin River Restoration Program Record of Decision, September 28, 2012.

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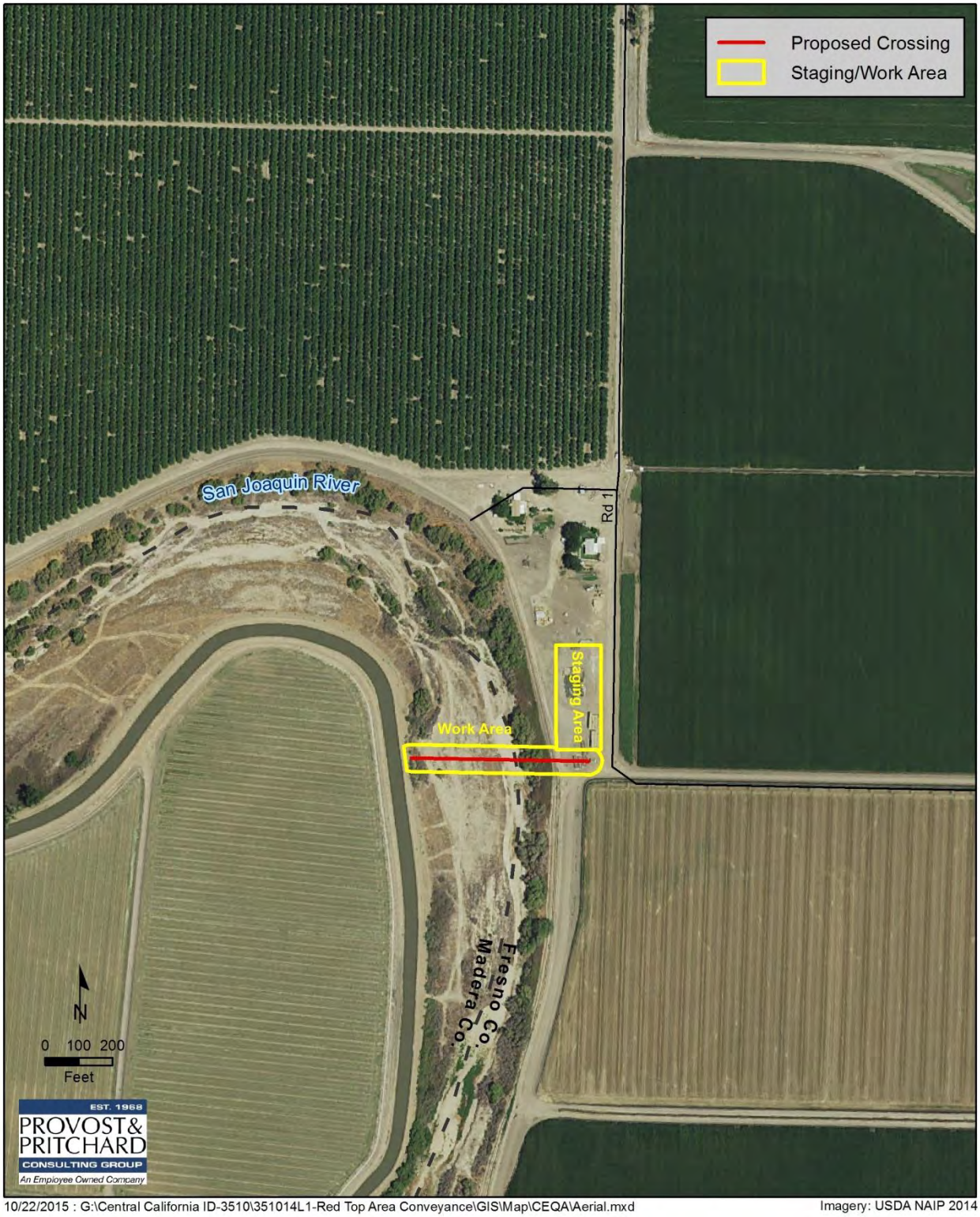
Figure 1-2 - Regional Map



AFigure 1-3- Area of Potential Effect

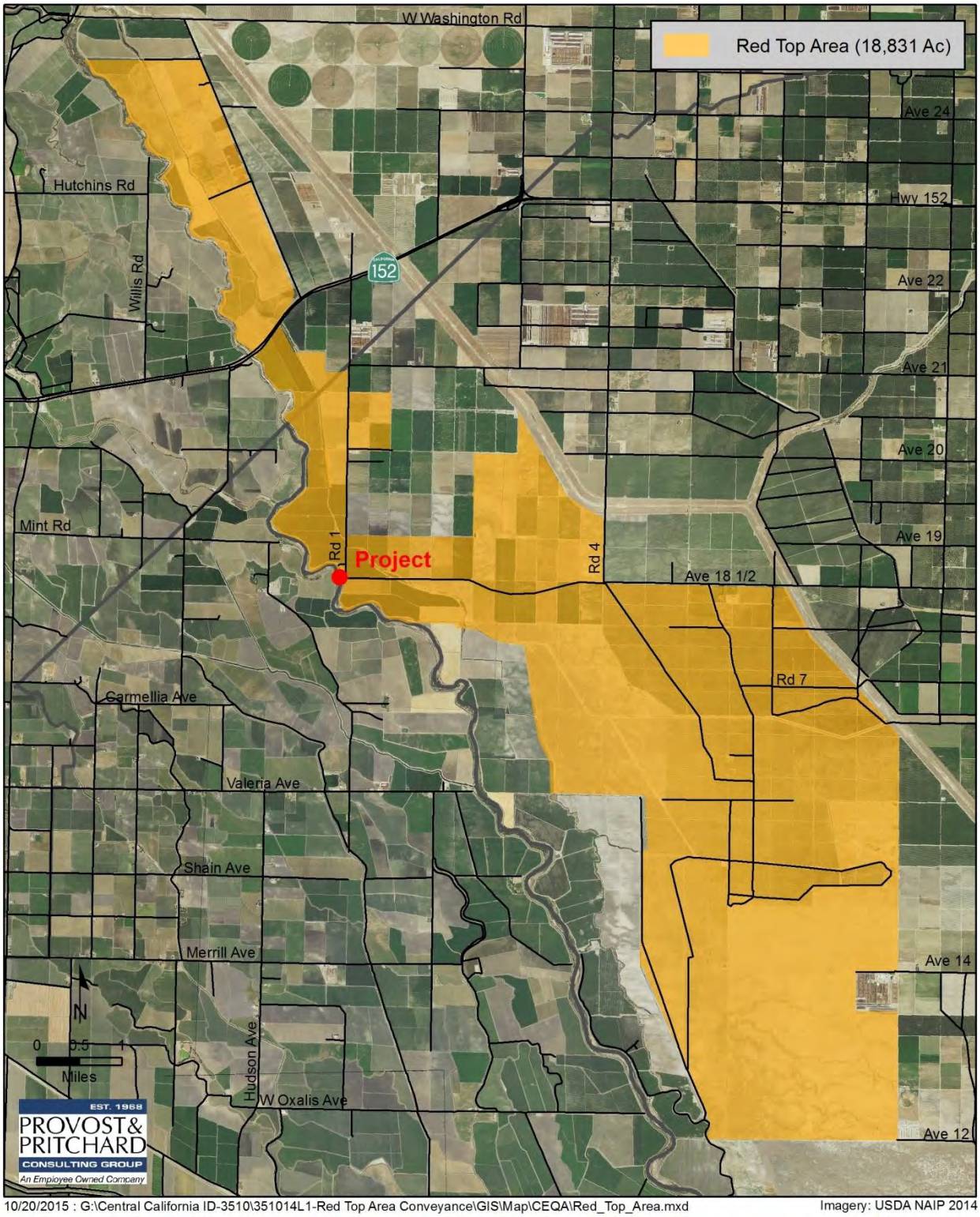


Figure 1-4 – Red Top Area Map

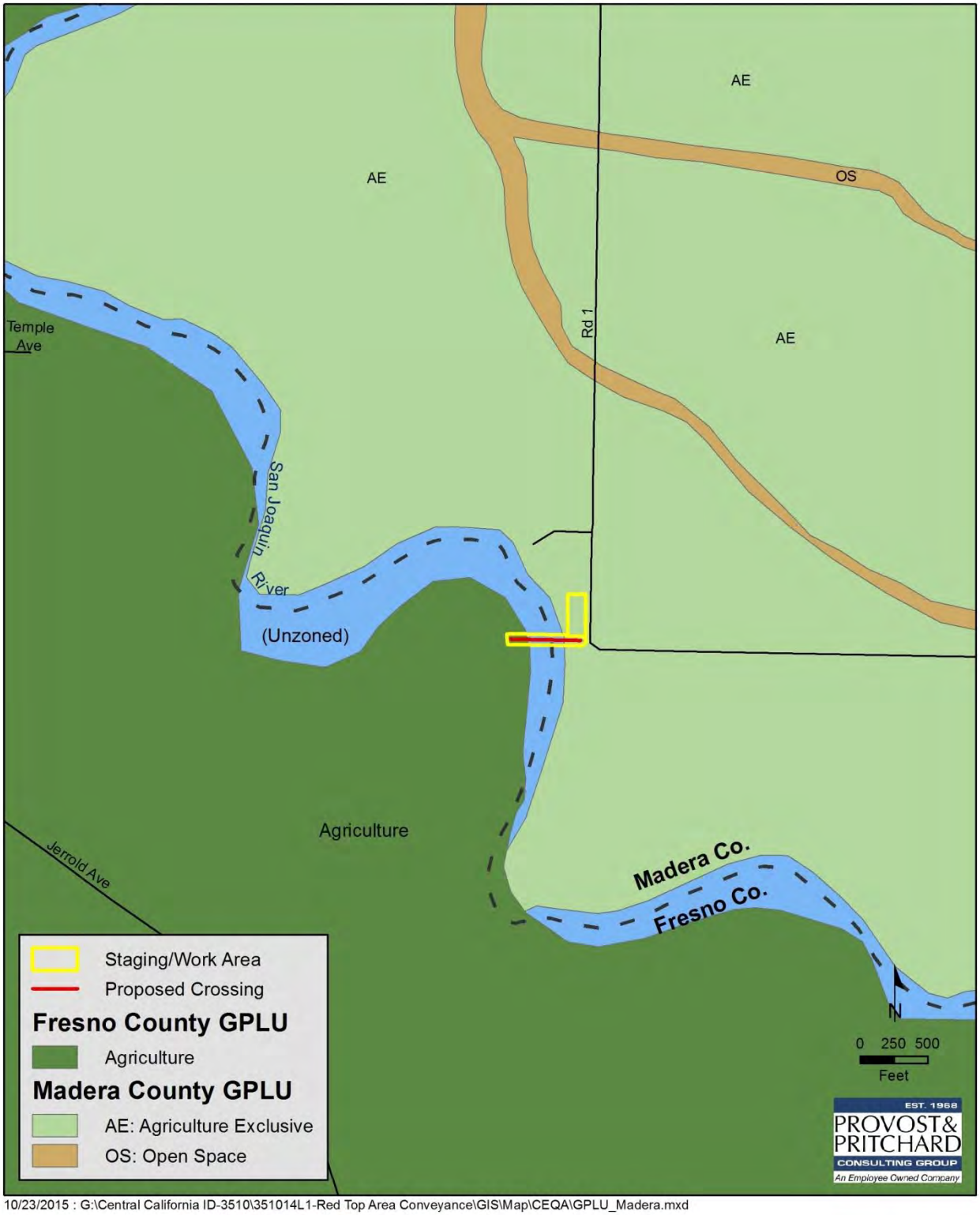


Figure 1-5 – General Plan Land Use

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Figure 1-6 - Zoning

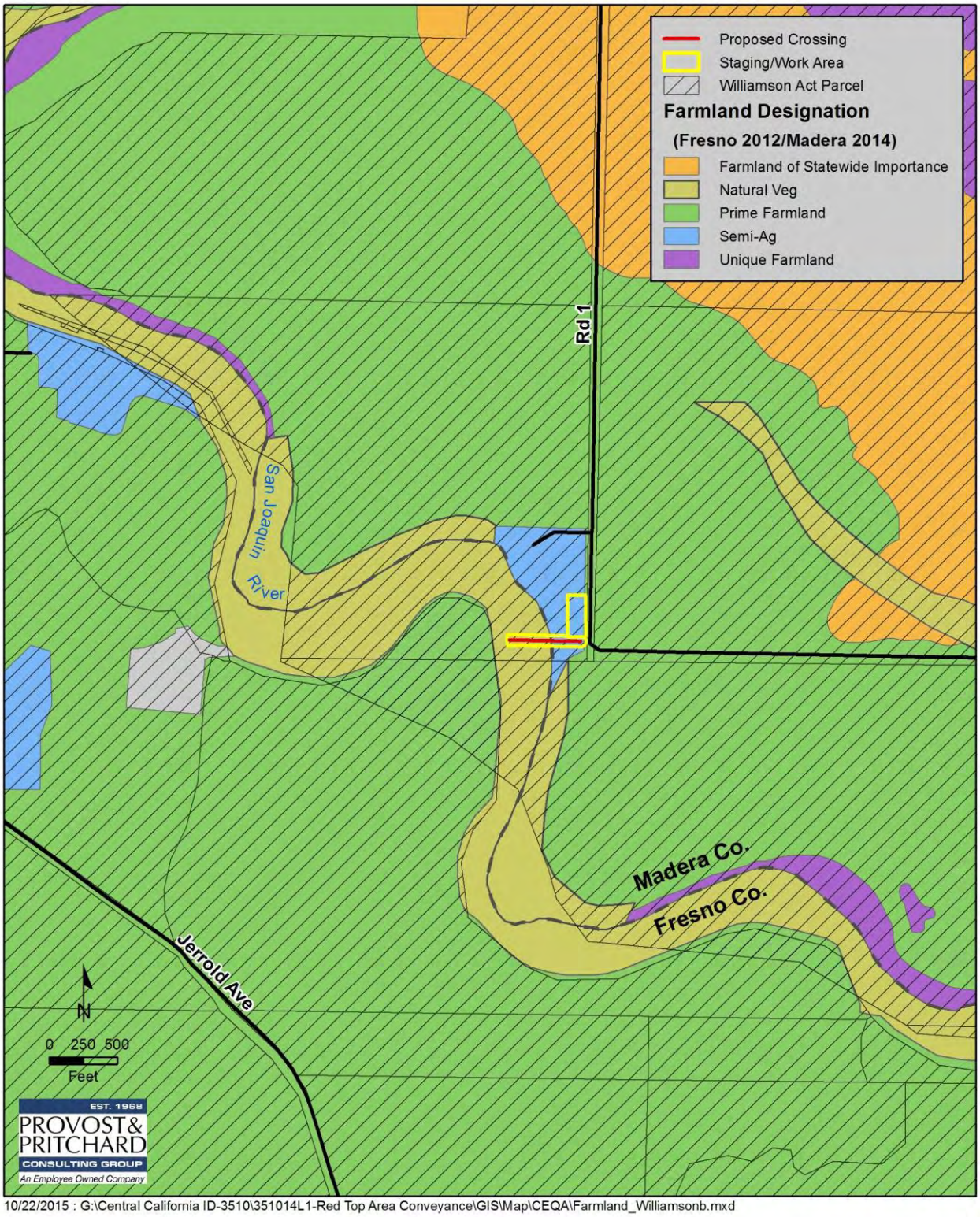

Figure 1-7 - Farmland Designation

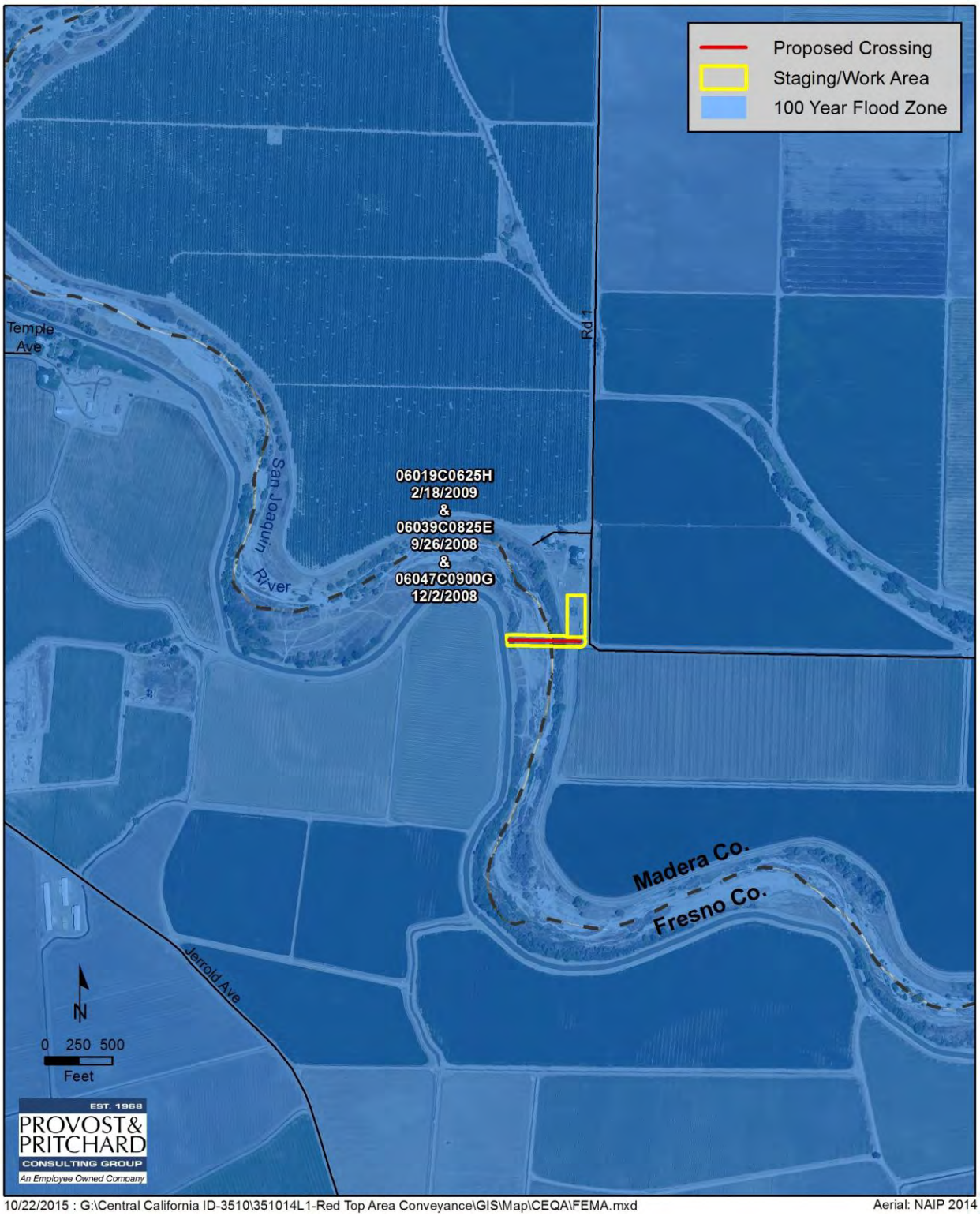

Figure 1-8 - Digital Flood Insurance Rate Map (DFIRM)

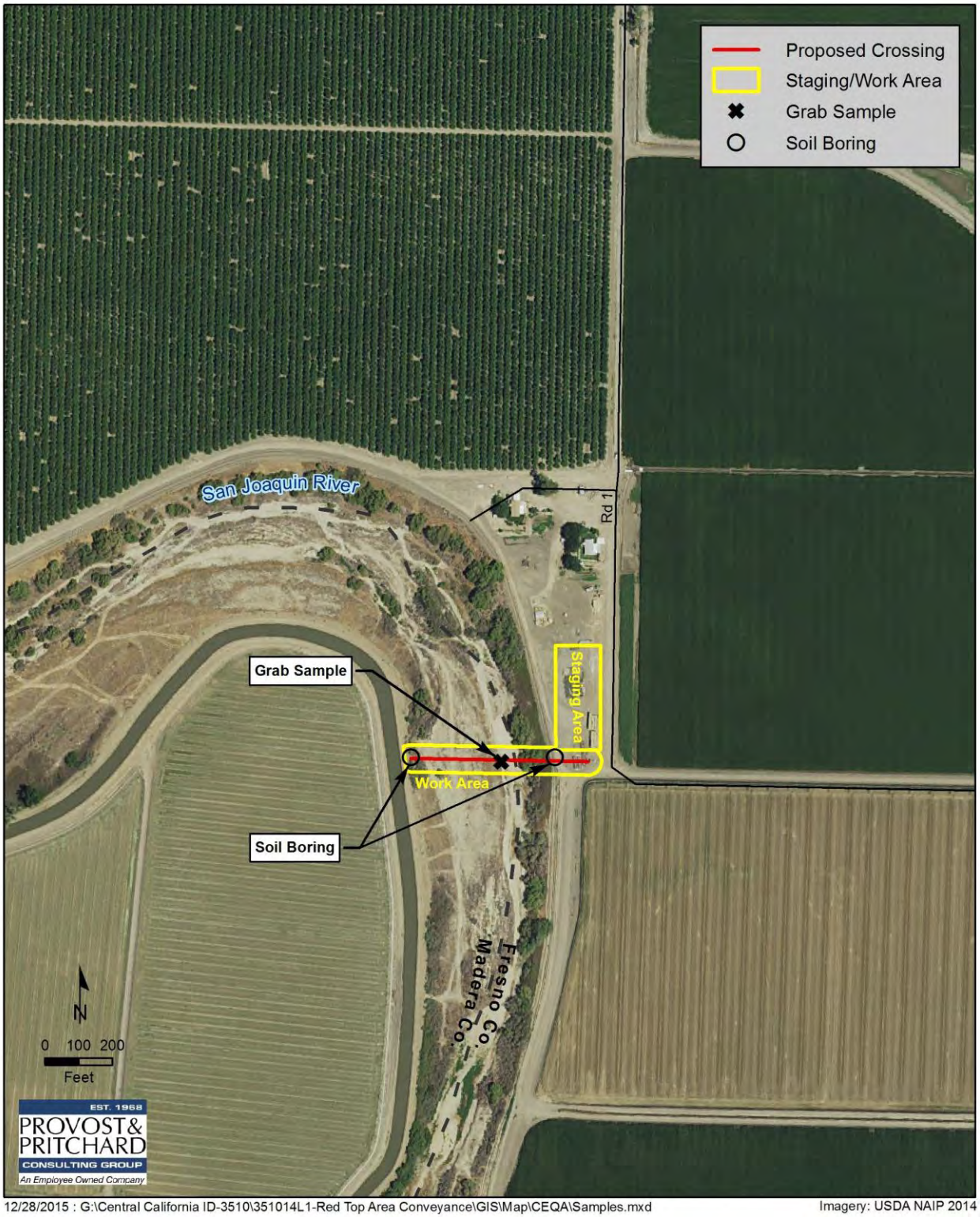

Figure 1-9 – Proposed Geotechnical Soil Samples

Figure 1-10 – Project Flow Map

Section 2 Alternatives

This EA/IS considers two possible actions: the No Action Alternative and the Proposed Action/Project. The No Action Alternative reflects future conditions without the Proposed Action/Project and serves as a basis of comparison for determining potential effects to the human environment.

2.1 No Action/Project Alternative

Under the No Action/Project Alternative, Reclamation would not facilitate a water transfer and/or exchange from MID and CWD to the Red Top Area and the new turnout at Poso Canal, and the SJR crossing described as the Red Top Pipeline crossing would not be constructed. MID and CWD could attempt to utilize, transfer or exchange recaptured SJRRP Restoration Flows to other willing buyers. Under the No Action/No Project Alternative, the rate of land subsidence would continue unabated due to continued demands for groundwater in the area. Current subsidence rates in the general vicinity range from four inches to eighteen inches per year due to groundwater overdraft.

2.2 Proposed Action/Project Alternative

Proposed Action/Project Description

The Proposed Action/Project involves Reclamation facilitating a 10-year transfer and/or exchange of up to 10,000 acre-feet per year, potentially including recaptured SJRRP Restoration flows, from MID and CWD to the Red Top Area during WY 2016-2026 (April 1, 2016 through February 28, 2026) see Figure 1-10. The water to be transferred and/or exchanged could be a portion of MID's or CWD's water supplies that exceed their current demands or are physically incapable of being delivered to their districts. In addition, MID and CWD would meet existing obligations of their respective Districts to the Red Top Area. Potential water supplies include recaptured ~~San Joaquin River Restoration Program~~ SJRRP Restoration Flows, described below, and other ~~Central Valley Project (CVP)~~ water supplies accessible to MID and CWD ~~authorized pursuant to the San Joaquin River Settlement. Further, other sources could~~ include~~ing~~ ~~conserved and fallowed~~ water from conservation and fallowing programs pursuant to the "Water Transfer Program for the San Joaquin River Exchange Contractors Water Authority, 2014 – 2038." Final EIS/EIR January 2013; Record of Decision July 2013.

Recaptured Restoration ~~f~~Flows ~~that~~ would be made available to Friant Division Long-Term Contractors, specifically to MID and CWD in this instance, through ~~direct~~ diversion ~~to~~ at the Mendota Pool or in San Luis Reservoir routed through the DMC to the Mendota Pool. In addition, some SJRRP Flows that cannot be conveyed down the San Joaquin River may be ~~directly recaptured and~~ made available to MID and/or CWD ~~for recirculation~~ at the Mendota Pool through the Central California Irrigation District (CCID) Main Canal into the Poso Canal. Other water that could be made available under this action could include MID and/or CWD water supplies, including CVP water, made available under a willing seller/willing buyer

arrangement. Any future actions in addition to the Proposed Action/Project will be subject to supplemental environmental analysis, as necessary.

These flows would be picked up through the following conveyance mechanism: A newly constructed cast in place concrete box turnout in the Poso Canal and the Red Top Pipeline crossing as shown in Figure 1-3. The pipeline would consist of installing a 36-inch single wall reinforced concrete pipe (RCP) or mortar lined and coated steel pipeline from a 36-inch stub on a ~~48~~ 92 inch by ~~48~~ 126 inch cast in place concrete box turnout in the Poso Canal, across the SJR where it ~~will~~would connect to an existing pump station and conveyance facilities running east along the mid-section line of the section. The 36" pipeline that goes underneath the San Joaquin River, will have a design flow rate of 40 cubic feet per second (cfs). The pipeline will be buried with a minimum cover of six feet below the river bed. The total distance of pipe across the SJR from ordinary high water mark to ordinary high water mark (OHWM) is approximately 100 feet as scaled from aerial maps when water was visible in the SJR during 2013.

Construction

Construction of the Proposed Action/Project is anticipated to be completed within two months of approval of permits. The following permits are anticipated:

- U.S. Army Corp of Engineers – 404 Permit
- State Water Resources Control Board – 401 ~~Permit~~ Certification
- CA Department of Fish and Wildlife – Streambed Alteration ~~Permit~~ Agreement
- Central Valley Flood Protection Board – Encroachment Permit
- California State Lands Commission – Lease

Construction of the crossing will require temporary disturbance of the channel area by the clearing of riparian vegetation. A geotechnical investigation will be conducted within the proposed alignment prior to construction to determine the soils profiles, associated soil~~s~~ types and groundwater elevations (see Figure 1-9). The investigation 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 qualified biologist's approved seed mixture of native plants. The width of the temporary disturbed area for excavating the trench and installing the pipeline will be approximately 80 feet for the crossing. The total temporary disturbed area across the SJR from the Poso Canal Turnout to the existing pump station for the pipe crossing will be approximately 0.83 acres. The total temporary disturbed area within the OHWM 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 day light hours, Monday through Friday, excluding holidays. Proposed Action/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. The types of construction equipment and duration of each construction stage are detailed in the following table.

Table 2-1 Proposed Action/Project Construction Equipment

	No. Units	Duration Months	Period
Site preparation, trenching		0.25	0.25 month
Water Truck 2,500 gal	1	0.25	
Grader	1	0.25	
Compactor	2	0.25	
Pick-up Truck	2	0.25	
5-kW Generator	2	0.25	
Equipment Transport Trucks (Delivery)	1	0.25	
Flat-Bed Trucks (Freight, Delivery)	2	0.25	
Installation of Pipeline, backfilling, compaction, and re-vegetation			1.5 month
Water Truck 2,500 gal	1	1.5	
Compactor	1	1.5	
Backhoe	2	1.5	
Skid Steers	2	1.5	
Forklifts	2	1.5	
Front-End Loaders	1	1.5	
20-Ton Dump Truck (Gravel Delivery)	1	0.5	
5-Cubic Yard Dump Truck	1	1.5	
5-kW Generator	2	1.5	
20-kW Generator	2	1.5	
Ready-Mix Trucks (Concrete Delivery)	1	0.5	
Flat-Bed Trucks (Freight, Delivery)	2	1.5	
Pick-Up Trucks	2	1.5	
Equipment Transport Trucks (Delivery)	1	0.5	
Site clean-up			0.25 month
Water Truck 2,500 gal	1	0.25	
5-Cubic Yard Dump Truck	2	0.25	
Front-End Loaders	1	0.25	
Forklifts	1	0.25	
Backhoe	1	0.25	
5-kW Generator	1	0.25	
20-kW Generator	1	0.25	
Equipment Transport Trucks (Delivery)	1	0.25	
Pick-Up Trucks	2	0.25	

It is anticipated that Proposed Action/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.

Material/Construction Staging
The construction staging area for the Proposed Action/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 (see Figure 1-3).

Construction Water Usage
The Proposed Action/Project would require approximately 0.15 acre-feet of water for dust control and trench compaction during the construction period.

Construction Waste Disposal
The Proposed Action/Project construction 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.

This EA/IS analyzes and discloses the potential impacts of contractual actions related to water transfers between MID, CWD or other willing sellers, such as the Exchange Contractors, and the Red Top Area. Reclamation, as the lead federal agency, will engage in contract actions to assist in this transfer. While Reclamation is not directly engaging in the construction or maintenance of the facilities planned to transfer water to the Red Top Area, it is recognized that the completion of these facilities ultimately would allow conveyance of the water to be transferred under such agreements. Thus, the actions are interrelated and are not being separated for the purposes of analysis under NEPA.

The water transfer would occur for a period of up to 10 years and would not exceed a maximum amount of 10,000 acre-feet of water in any given water year. The areas defined within this action are currently within the Central Valley Project (CVP) place-of-use. Additionally, the Poso Canal and associated diversion facilities are a point of diversion off of the San Joaquin River as stipulated in Reclamation's California State Water Resources Control Board (SWRCB), Division of Water Rights Orders for permit numbers 11885, 11886, 11887, and license 1986. Reclamation would continue to comply with any new water rights orders or dedications as provided by applicable law and as overseen by the SWRCB in undertaking the Proposed Action/Project.

2.2.1 Environmental Commitments

The following environmental commitments will be incorporated into the proposed action/project:

Water Resources Commitments

- Were it to rain during construction, appropriate best management practices (BMPs), such as the placement of straw mulch, silt fencing, or other activities as needed, would occur to limit turbid inputs of water into nearby water bodies. These BMPs will comply with applicable state and/or federal water quality requirements as appropriate.

- The District will notify the Central Valley Water Board in writing **seven days** prior to beginning any in-water activities.

- Except for activities permitted by the U.S. Army Corps of Engineers under § 404 of the Clean Water Act, soil, silt, or other organic materials shall not be placed where such materials could pass into surface water or surface water drainage courses.

- All areas disturbed by the Proposed Action/Project activities shall be protected from washout or erosion.

- The District will maintain a copy of the water quality certification and supporting documentation (Project Information Sheet) at the Project site during construction for review by site personnel and agencies. All personnel (employees, contractors, and subcontractors) performing work on the proposed Project shall be adequately informed and trained regarding the conditions of this Certification.

- An effective combination of erosion and sediment control Best Management Practices (BMPs) shall be implemented and adequately working during all phases of construction.

- All temporarily affected areas shall be restored to pre-construction contours and conditions upon completion of construction activities.

- Construction within the river channel will take place when flows are not present in the channel at the Project site. The construction schedule will be coordinated with the potential release of San Joaquin River Restoration (SJRR) flows. Construction of the pipeline will not begin if SJRR flows are anticipated to reach the Project site within one week of starting construction.

- The following thresholds will be maintained as part of the water quality certification:

  (a) where natural turbidity is less than 1 Nephelometric Turbidity Units (NTUs), controllable factors shall not cause downstream turbidity to exceed 2 NTUs;

  (b) where natural turbidity is between 1 and 5 NTUs, increases exceeding 1 NTU;

  (c) where natural turbidity is between 5 and 50 NTUs, increases exceeding 20 percent;

  (d) where natural turbidity is between 50 and 100 NTUs, increases exceeding 10 NTUs;

  (e) where natural turbidity is greater than 100 NTUs, increases exceeding 10 percent.

- Activities shall not cause settleable material to exceed 0.1 ml/L in surface waters as measured in surface waters downstream from the Project.

- Activities shall not cause the pH in surface waters to be depressed below 6.5 nor raised above 8.5.

- The discharge of petroleum products or other excavated materials to surface water. Activities will not cause visible oil, grease, or foam in the work area or downstream. The District will notify the Central Valley Water Board immediately of any spill of petroleum products or other organic or earthen materials.

- Prior to arrival at the project site and prior to leaving the project site, construction equipment that may contain invasive plants and/or seeds shall be cleaned to reduce the spreading of noxious weeds.

- The District will notify the Central Valley Water Board immediately if any of the above conditions are violated, along with a description of measures it is taking to remedy the violation.

- The District will comply with all California Department of Fish and Game Code § 1600 requirements for the Project.

Biological Commitments:

- Activities under the proposed action would occur when the Action Area is dry, and will be coordinated, with the input of the SJRRP Restoration Administrator, to occur when the potential for impacts to special status salmonids are avoided and minimized, as described by the environmental commitments in section 2.2.1. ~~to the extent feasible. Prior to construction activities, Reclamation will coordinate with the Implementing Agencies on the specific actions planned to dewater the Action Area and develop a plan for potential fish rescue activities, as appropriate.~~

Migratory Bird Nests

- **(*Avoidance*).** In order to avoid impacts to all nesting birds from grading and construction, these activities will occur outside of the typical avian nesting season, or between September 1 and January 31, as feasible. If the Proposed Action/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 the Proposed Action/Project must be initiated during the typical avian nesting season (February 1 to 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 Proposed Action/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 in or near proposed construction zones, 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.

Burrowing Owl

- ***(Take Avoidance Surveys).*** A pre-construction "take avoidance" survey will be conducted by a qualified biologist for burrowing owls within 30 days from the onset of construction according to methods described in the *Staff Report on Burrowing Owl Mitigation* (CDFW 2012). The survey area will include all suitable habitat on and within 500 feet of Proposed Action/Project impact areas, where accessible.

- ***(Avoidance of Active Nests).*** If take avoidance surveys and subsequent Proposed Action/Project activities are undertaken during the breeding season (February 1 to August 31) and active nest burrows are located within or near construction zones, a 250-foot construction-free buffer will be established around all active burrowing 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 the entry of construction equipment and workers. 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 through January 31), resident owls occupying burrows in Proposed Action/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 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.

- ~~***(Replacement Burrows).*** Should any previously occupied burrows be collapsed during passive relocation activities artificial burrows at a ratio of 1 burrow collapsed to 1 artificial burrow (i.e. 1: 1) will be constructed~~.

San Joaquin kit fox

- ***(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 Proposed Action/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 Proposed Action/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. 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 Proposed Action/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 r~~Rodenticide and herbicide use will be restricted;~~,~~ if rodent control must be conducted, zinc phosphide ~~shall~~will 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 Proposed Action/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 Proposed Action/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, which 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 Proposed Action/Project Area.

- No pets will be permitted in the Proposed Action/Project Area to prevent harassment, or, mortality of SJKF, or destruction of dens.

- Upon completion of the Proposed Action/Project, all areas subject to temporary ground disturbances, including staging areas temporary roads, and borrow sites will be re-contoured, 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).*** A representative will be appointed who will be the contact for any employee or contractor who might inadvertently kill or injure a SJKF or who finds a dead, injured or entrapped SJKF. The representative will be identified during the employee education program and their name and telephone number will be~~

~~provided to the Service and CDFW. 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 Proposed Action/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.~~

Riparian Habitats and Other Sensitive Natural Communities

- **(*Tree Survey*).** Prior to Proposed Action/Project construction a qualified biologist will survey all trees with a diameter at breast height (DBH) greater than 4 inches within the impact area. During the survey the biologist will note the location, DBH, and species of each tree. Upon Proposed Action/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-~~Proposed Action/P~~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 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 Proposed Action/Project which will detail the maintenance, monitoring, performance criteria and success rate for trees planted within the site.

Federally Protected Wetlands

- **(*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:

    - 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 waddles, post-construction hydromulch containing the seed of native soil-binding plants, or straw mechanically embedded in exposed soils.

- ~~Use of b~~Best management practices (BMPs) to control soil erosion and non-point source pollution.

- **(*Time of Construction to Occur During the Dry Season*).** Where possible, Proposed Action/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 above, but will ensure that the potential for soil erosion has been minimized to the maximum extent feasible.

- ~~No firearms will be allowed on the Project site.~~

- Upon completion of the Project, all areas subject to temporary ground disturbances, including staging areas, temporary roads, and borrow sites will be re-contoured if necessary, and revegetated to promote restoration of the area to pre-project conditions.

- All off-road or construction equipment should be free of soil, mud (wet or dried), seeds, vegetative matter or other debris which could contain seeds in order to prevent infestations of noxious weeds in the project area.

- When needed for soil stabilization, use certified weed-free mulches where available, mulches with low risk of weed introduction where certified weed-free is not available, and certified weed-free seed mixes. Seed mixes will be recommended by a qualified botanist and approved by CDFW and USFWS.

- Crushed rock, drain rock, riprap and soil fill for project activities shall be obtained from weed-free sources. Construction materials will not be stockpiled or staged on the Project site.

Cultural and Paleontological Commitments:

- 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. Further recommendations shall be considered as presented by the professional and additional measures shall be implemented 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.

- If during the course of Proposed Action/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. Further recommendations shall be considered as presented by the professional and additional measures shall be implemented 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.

- 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.

Geology and Soils Commitments:

- 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.

The transfer shall further be subject to the following parameters:

- No native or untilled land (fallow for three consecutive years or more) would be cultivated with the water involved in this action.
- Transferred water can only be used for Agricultural (Ag) purposes.
- The ultimate purpose of use is Ag and/or groundwater recharge.
- The transfer will be between willing sellers and willing buyers.

- The transfer shall be limited to existing supply and will not increase overall consumptive use.
- The transfer for Ag water will be used on lands irrigated within the last three consecutive years.
- The transfer will not lead to any land conversions.
- The transfer shall comply with all applicable Federal, State, Local or Tribal laws or requirements imposed for the protection of the environment and Indian Trust Assets (ITA).
- The transfer cannot alter the flow regime of natural water bodies such as rivers, streams, creeks, ponds, pools, wetlands, etc., in order to not have a detrimental effect on fish or wildlife, or their habitats.

Section 3 Affected Environment and Environmental Consequences

Affected Environment/Environmental Setting

The Proposed Action/Project is located on the western side of Fresno and Madera counties in the San Joaquin Valley. Red Top is an area located south of Highway 152, near the areas of Avenue 18 ½ and Avenue 20 ½, near the Eastside Bypass and the San Joaquin River (See Figure 1-2 – Regional Map). The land use in the area consists of existing agricultural utilization for the growing of almonds, pistachios, vineyards, alfalfa, corn and other grain crops. The Red Top area has been found to be an area of substantial land subsidence as a result of deep groundwater well pumping in the area, from beneath the Corcoran Clay. The subsidence in this area has variably ranged from four to eighteen inches per year from 2008 to 2010, based on California Department of Water Resources surveys.

The San Joaquin River Exchange Contractors, which include San Luis Canal Company (SLCC) and Central California Irrigation District (CCID) along with two other districts, hold historic water rights to water in the San Joaquin River. Their service area is located on the west side of the San Joaquin Valley. In exchange for the Central Valley Project's (CVP) regulation and diversion of the San Joaquin River at Millerton Lake (Friant Division), Reclamation agreed to supply water to the Exchange Contractors from the CVP's Delta supply. The terms of the Exchange Contract define the quantity of surface water in accordance with a five-month and seven-month delivery schedule.

Henry Miller Reclamation District (HMRD), through an administrative agreement with San Luis Canal Company owns and operates the Sack Dam and Arroyo Canal. The Arroyo Canal's headworks are located just west of the San Joaquin River and diverts flows off of the San Joaquin River channel. The supply originates from the Delta Mendota Canal, which are released from the Mendota Pool approximately 20 miles upstream. Arroyo Canal diversions range from zero to 800 cubic feet-per-second, but typically do not exceed 620 cubic feet-per-second. Sack Dam was constructed in the 1940s and is a 5.75-foot high concrete and wooden diversion structure that creates enough head differential to divert flows from the San Joaquin River channel down the Arroyo Canal. San Luis Canal Company receives its surface water supplies from Reclamation pursuant to the Exchange Contract. If the subsidence rates continue unabated, the Arroyo Canal headworks off of the San Joaquin River (the sole diversion for SLCC) will no longer be a functional gravity diversion. All water would either have to be pumped at that location, or SLCC would possibly have to go upstream in the San Joaquin River and construct a new gravity turnout with the associated canal system to tie into the existing Arroyo Canal downstream.

Central California Irrigation District (CCID) owns and operates the Poso Canal, which conveys water from the Mendota Pool to the north for deliveries within its boundaries. While the Arroyo Canal moves from the San Joaquin River channel westward, the Poso Canal crosses over the top of the Arroyo Canal in a flume from south to north. The Poso Canal diversions range from zero to 150 cubic feet-per-second. CCID receives its surface water supplies from Reclamation

pursuant to the Exchange Contract. Subsidence reduces the gravity flow capacity of the Poso Canal and if left unchecked will stop the ability for the CCID to deliver water to about 10,000 acres within its service area.

Mendota Pool is a regulating reservoir for water pumped from the Delta and delivered by the Delta-Mendota Canal (DMC). The Mendota Pool is impounded by Mendota Dam, which is owned and operated by CCID. Currently, Mendota Pool is sustained by the inflow from the DMC, which typically conveys 2,500 to 3,000 cfs to the Mendota Pool during the irrigation season. Mendota Pool contains approximately 8,000 acre-feet of water and has a surface area of approximately 2,000 acres when full. It is the largest body of ponded water on the San Joaquin Valley basin floor.

The DMC carries water southeasterly from the Tracy (C.W. "Bill" Jones) Pumping Plant, located in the Sacramento-San Joaquin River Delta (Delta), along the west side of the San Joaquin Valley for irrigation supply, for use in the San Luis Unit, and to replace San Joaquin River water stored at Friant Dam and used in the Friant-Kern and Madera Canals. The DMC is about 117 miles long and terminates at the Mendota Pool, about 30 miles west of Fresno. The DMC is a part of the CVP, Delta Division.

Madera Irrigation District (MID) holds a contract with Reclamation for the delivery of, subject to certain shortage provisions, up to 85,000 acre-feet per year of Class 1 and 186,000 acre-feet per year of Class 2 Agricultural water from the Friant Division of the CVP. MID could facilitate the transfer of water under the Proposed Action/Project and is a Friant Division Long-Term Contractor.

Chowchilla Water District (CWD) holds a contract with Reclamation for the delivery of, subject to certain shortage provisions, up to 55,000 acre-feet per year of Class 1 and 160,000 acre-feet per year of Class 2 Agricultural water from the Friant Division of the CVP. Chowchilla could facilitate an exchange of water under the Proposed Action/Project and is a Friant Division Long-Term Contractor.

Madera ID and Chowchilla WD would receive a proportionate share of the releases which can be designated for delivery to the Red Top growers. Once in the Mendota Pool, after release from San Luis Reservoir down the Delta-Mendota Canal, the water will be routed to CCID Main Canal, and then the CCID Poso Canal.

Environmental Issues Not Further Analyzed

There would be no impacts to aesthetics due to the low profile nature of the basin; no lights are proposed in this Proposed Action/Project. The Proposed Action/Project would not involve the use or transport of hazardous materials and there are no mineral resources in the vicinity. The Proposed Action/Project does not involve the addition of any new housing and would not require the need for any additional public services or recreational facilities. The Proposed Action/Project would not cause an increase in local traffic nor would it create additional demand from utility providers. There would be no impact regarding the above mentioned analysis areas, and therefore they are not further discussed.

3.1 Water Resources

3.1.1 Affected Environment

Madera Irrigation District

MID is a Friant Division Long-Term Contractor and holds a contract with Reclamation providing for the delivery, subject to certain shortage provisions, of up to 85,000 acre-feet per year of Class 1 and 186,000 acre-feet per year of Class 2 Ag water from the Friant Division of the CVP. In 1975 Hidden Dam was completed on the Fresno River, providing a more regulated flow. MID entered into a long-term contract with Reclamation for water from Hensley Lake behind Hidden Dam. MID annexed lands for 24,000 acre-feet per year projected average yield for new water generated by the Hidden Dam project. This 24,000 acre-feet per year is both federal water and MID's water rights water from the Fresno River, including Big Creek Diversion from the Merced River watershed and the Soquel Diversion from the San Joaquin River watershed.

MID and surrounding area is within a groundwater deficient area as designated by DWR. MID considers their recharge to be from an open canal system and percolation basins located throughout the district. MID monitors the depth to static water level within the district although MID does not provide groundwater. Private landowners have wells and extract groundwater when surface water supplies are not available. However, in recent years the groundwater in areas near Hwy 99 and Avenue 12 has a plume of the nematicide (dibromochloropropane (DBCP)) that flows southwesterly through the basin. Studies conducted in 1993 indicated the DBCP in the groundwater had decreased significantly. The groundwater in areas surrounding the Tri-Valley Growers olive plant (Oberti Olives) near Avenue 13 and Road 26 contains salt brine. Tri-Valley Growers are implementing remediation measures to correct this problem under the regulatory direction of the Regional Water Quality Control Board.

A portion of the City of Madera lies within the boundaries of MID. These lands are assessed on a per square-foot basis and receive groundwater recharge benefit from canals that pass through the city. MID does not provide surface water supplies to the City of Madera. The main crops in Madera Irrigation District's service area are grapes, almonds, and pistachios.

Chowchilla Water District

CWD encompasses 123.95 square miles of land primarily to the west of California State Highway 99 and straddling California State Highway 152. There are 65,000 irrigated acres in the district, all of which is irrigated with CVP water. The district receives an average of 125,000 acre-feet per year. CWD is a Friant Division Long-Term Contractor and holds a contract with Reclamation providing for the delivery, subject to certain shortage provisions, of up to 55,000 acre-feet per year of Class 1 and 160,000 acre-feet per year of Class 2 Ag water from the Friant Division of the CVP. In 1975 Buchanan Dam was completed on the Chowchilla River, providing a more regulated flow. CWD entered into a long-term contract with Reclamation for water from Eastman Lake behind Buchanan Dam. The projected average yield for new water generated by the Buchanan Dam project was 24,000 acre-feet.

The Chowchilla Groundwater Basin is designated by the State Department of Water Resources as critically overdrafted. CWD recharges the groundwater by diverting water into local water

channels, unlined earth canals and percolation ponds located throughout the district. CWD monitors the depth to static water level within the district. Private landowners have wells and extract groundwater when surface water supplies are not available. The groundwater quality is considered to be of excellent quality.

As of 1999, there were 13,200 acres of alfalfa, 14,600 acres of almonds, 7,600 acres of cotton, 9,000 acres of corn, 8,100 acres of grapes and 5,000 acres of sorghum grown in the district. The district maintains and operates 160 miles of unlined canals and 49 miles of pipe for agricultural water delivery. The primary way that the district gets its water is through the Madera Canal and the Chowchilla River.

Groundwater Resources

San Joaquin River Hydrologic Region

The San Joaquin River Hydrologic Region covers approximately 9.7 million acres and includes all of Calaveras, Tuolumne, Mariposa, Madera, San Joaquin, and Stanislaus counties, most of Merced and Amador counties, and parts of Alpine, Fresno, Alameda, Contra Costa, Sacramento, El Dorado, and San Benito counties. The region is heavily reliant on groundwater. Changes in groundwater levels are evaluated on annual water level measurements by the DWR and cooperators. Water level changes were evaluated at the quarter-township level using a DWR computer modeling program. On average, the sub basin water level has increased by 2.2 feet total from 1970 through 2000. The period from 1970 through 1985 showed a general increase, topping out in 1985 at 7.5 feet above the 1970 water level. The nine-year period from 1985 to 1994 saw general declines in groundwater levels, reaching back down to the 1970 groundwater level in 1994. Groundwater levels rose in 1995 to about 2.2 feet above the 1970 groundwater level, then water levels fluctuated around this value until 2000 (DWR 2003).

Conveyance Facilities

California Aqueduct/San Luis Canal and San Luis Reservoir/O'Neill Forebay

Except for the California Aqueduct, these joint-use facilities are a part of the SWP and CVP, respectively. The San Luis Canal is the federally-built and operated section of the California Aqueduct and extends 102.5 miles from O'Neill Forebay in a southeasterly direction to a point west of Kettleman City. At this point, the facility becomes the State's California Aqueduct; however, the California Aqueduct actually begins at the Banks Pumping Plant where the canal conveys water pumped from the Sacramento-San Joaquin River Delta directly into O'Neill Forebay. The overall average capacity of the California Aqueduct is 13,100 cubic feet-per-second.

San Luis Reservoir (SLR) serves as the major storage reservoir and O'Neill Forebay acts as an equalizing reservoir for the upper stage dual-purpose pumping-generating plant. O'Neill Forebay is used as the hydraulic junction point for Federal and State waters. Pumps located at the base of O'Neill Dam take water from the Delta-Mendota Canal (DMC) through an intake channel (a Federal feature) and discharge it into O'Neill Forebay. The pumping-generating units lift the water from O'Neill Forebay and discharge it into SLR. When not pumping, these units generate electric power by reversing flow through the turbines. During irrigation months, water from the California Aqueduct flows through O'Neill Forebay into the San Luis Canal instead of being pumped into SLR. Both reservoirs also provide recreation and flood control benefits.

Delta-Mendota Canal
The DMC, completed in 1951, carries water southeasterly from the Tracy (C.W. "Bill" Jones) Pumping Plant along the west side of the San Joaquin Valley for irrigation supply, for use in the San Luis Unit, and to replace San Joaquin River water stored at Friant Dam and used in the Friant-Kern and Madera Canals. The DMC is about 117 miles long and terminates at the Mendota Pool, about 30 miles west of Fresno. The initial diversion design capacity is 4,600 cubic feet-per-second, which is gradually decreased to 3,211 cubic feet-per-second at the terminus. The DMC is a part of the CVP, Delta Division.

Madera Canal
The Madera Canal originates at Millerton Lake and runs approximately 36 miles north along the eastern edge of the San Joaquin Valley, ending at the Chowchilla River. The canal makes CVP water deliveries to the north to augment irrigation capacity. The canal has a design capacity of 1,275 cubic feet-per-second, and decreases in capacity along its length to 625 cubic feet-per-second at the terminus. Water conveyed in the Madera Canal is considered of good quality as its origin is that of snow melt from the Sierra Nevada range. The canal is maintained by the Madera-Chowchilla Water and Power Authority.

3.1.2 Environmental Consequences

Affected Environment
It has recently been discovered that the Red Top Area has experienced increasing subsidence due to groundwater overdraft in the area. This land subsidence, based on studies by various state, local, and federal agencies, indicates subsidence rates of between four to fifteen inches per year. This is generally due to the lack of surface water supplies within the area and the increasing demand for groundwater, which has caused water to be drawn in overdraft from below the area's Corcoran Clay layer.

No Action/Project Alternative
Under the No Action Alternative, Reclamation would not facilitate a water transfer and/or exchange from MID and CWD to the Red Top area. The new turnout at Poso Canal and the SJR crossing would not be constructed. MID and CWD could attempt to utilize, transfer, or exchange the recaptured SJRRP Restoration Flows to willing buyers. Groundwater pumping would continue in WY 2016-2026 unabated and likely result in the continuance of land subsidence of approximately four to eighteen inches per year.

Proposed Action/Project
Under the Proposed Action/Project, recirculation of water could occur through the execution of a transfer and/or exchange from MID and CWD to the Red Top area. The exchange would not increase or decrease existing CVP or SWP allocations. Additionally, the water being transferred would have a beneficial impact to the surrounding environment because the water would be utilized to temporarily reduce land subsidence as a result of decreased groundwater pumping and increased surface water supply deliveries. Groundwater and subsidence monitoring will be implemented on a regional level by the Bureau of Reclamation in order to determine if there is a substantial change or net benefit as a result of the action. The transfer would be for a period of up to ten years and would not result in any long-term adverse impacts to surface water supplies

or groundwater supplies, and intended to have a beneficial impact on groundwater supplies in the Red Top Area.

The Proposed Action/Project would comply with California State Water Resources Control Board (SWRCB), Division of Water Rights, long-term water rights order for permits 11885, 11886, 11887 and license 1986, issued on October 21, 2013.

~~Construction activities under the Proposed Action/Project would occur from approximately March through July 2016 over approximately 40 working days. Were it to rain during construction, appropriate best management practices (BMPs), such as the placement of straw mulch, silt fencing, or other activities as needed, would occur to limit turbid inputs of water into nearby water bodies. These BMPs will comply with applicable state and/or federal water quality requirements as appropriate.~~
Construction activities under the Proposed Action/Project would occur from approximately November through December 2016 over approximately 40 working days. Were it to rain during construction, appropriate best management practices (BMPs), such as the placement of straw mulch, silt fencing, or other activities as needed, would occur to limit turbid inputs of water into nearby water bodies. These BMPs will comply with applicable state and/or federal water quality requirements as appropriate. An additional BMP consisting of the placement of high-visibility plastic fencing around open trenches will be implemented to ensure public safety.

The Proposed Action/Project would include the construction of a new turnout and San Joaquin River crossing, consisting of a pipeline that will connect the new turnout at the Poso Canal to existing pump stand on the other side of the river. This would facilitate the delivery of surface water supplies to the Red Top Area, where it could be made available through transfers and/or exchanges with various water agencies. The Proposed Action/Project will help local agricultural efforts in a variety of ways. It will allow for (1) connection to existing on-farm distribution facilities that allow for flexibility of conveyance of shallow groundwater in the region to reduce the reliance on pumping below the Corcoran Clay layer, (2) allow local landowners to divert flood water to on-farm percolation basins, where it will then percolate into the shallow groundwater aquifer where it can be stored for future, more sustainable, pumping, (3) allow local water and irrigation districts to provide surface water supplies to help augment Red Top Area landowners' groundwater pumping. Any future actions in addition to the Proposed Action/Project will be subject to supplemental environmental analysis, as necessary.

3.2 Biological Resources

3.2.1 Affected Environment

The Proposed Action/Project site is located south of the State Route 152 crossing of the San Joaquin River (SJR) immediately west of the intersection of Rd 1 and the Ave 18 ½ alignment. The site occurs within a region dominated by agricultural land uses and is immediately bordered by the San Joaquin River and agricultural lands. Human activities have substantially modified the 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. Environmental conditions were determined by Live Oak Associates, Inc. (LOA) by analyzing previous biological studies, databases, manuals, and references as well as by conducting a field survey on

November 9, 2015. The Proposed Action/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 Proposed Action/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.

Ruderal

The majority of the site consists of ruderal areas in the form of an agricultural staging area, dirt roads, and barrier ditches. Vegetation within ruderal areas is sparse and primarily comprised of 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 are absent from this habitat category in the Project area. Ruderal areas of the type observed on the Proposed Action/Project site do not provide significant habitat for native terrestrial vertebrate species. However, those species occurring in natural biotic habitats elsewhere on the 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).

SJR Channel

The SJR channel within the Proposed Action/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 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), ripgut 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 Proposed Action/Project site at the time of the field survey due to the absence of water. Some fish species may occur on the 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 (Scleloporus 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 Proposed Action/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.

Valley Riparian

Valley riparian habitat within the Proposed Action/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 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 include 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 Proposed Action/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.

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 Proposed Action/Project site. The canal runs parallel to the SJR in the vicinity of the 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.

The *California Natural Diversity Data Base* (CDFW 2015) was queried for special status species occurrences in the nine USGS 7.5-minute quadrangle containing and surrounding the Proposed Action/Project site (*Santa Rita Bridge, Bliss Ranch, Poso Farm, Oxalis, Dos Palos, Delta Ranch, Turner Ranch, Sandy Mush,* and *El Nido*). The U.S. Fish and Wildlife Service's Information for Planning and Conservation (IPac) system was queried for federally listed species with the potential to be affected by the Proposed Action/Project, based on a general polygon encompassing all components (USFWS 201~~5~~6). These plant and animal species and their potential to occur on the site are listed in Table 1 and 2, respectively, on the following pages.

Table 3-1 – List of Special Status Plant Species

Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Act

Species	Status[1]	Habitat	Potential for Occurrence in the Study Area
Palmate-bracted Bird's-beak (*Cordylanthus palmatus*)	FE, CE, CNPS 1B	Occurs in alkaline grasslands or scrub; blooms May to October.	**Absent.** Suitable habitat for this species is absent from the Proposed Action/Project site. Furthermore, no recorded occurrences exist along the SJR corridor for this species.
Delta Button Celery (*Eryngium racemosum*)	CE, CNPS 1B	Occurs in seasonally inundated floodplains on clay soils within riparian scrub habitat. Blooms June - October.	**Absent.** Clay soils required by this species are absent from the Proposed Action/Project site. Furthermore, this species is not known to occur in Fresno or Madera Counties.
Hoover's Spurge (*Euphorbia hooveri*)	FT, 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 Proposed Action/Project site.
Colusa Grass (*Neostapfia colusana*)	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 Proposed Action/Project site.

Species listed as Special Status by the California Native Plant Society

Heartscale (*Atriplex cordulata*)	1B.2	Occurs in alkaline and saline grasslands, scrub, sandy soils; blooms March to October.	**Absent.** Suitable habitat for this species is absent from the Proposed Action/Project site. Furthermore, no *Atriplex* species were observed during the site survey.
Brittlescale (*Atriplex depressa*)	1B.2	Occurs in alkaline and saline grasslands, scrub, clay soils; blooms May to October.	**Absent.** Suitable habitat for this species is absent from the Proposed Action/Project site. Furthermore, no *Atriplex* species were observed during the site survey.
Lesser Saltscale (*Atriplex miniscula*)	1B.1	Occurs in alkaline and saline grasslands, scrub, sandy soils; blooms May to October.	**Absent.** Suitable habitat for this species is absent from the Proposed Action/Project site. Furthermore, no *Atriplex* species were observed during the site survey.
Vernal Pool Smallscale (*Atriplex persistens*)	1B.2	Occurs in alkaline vernal pools; blooms June - October.	**Absent.** Suitable habitat for this species is absent from the Proposed Action/Project site. Furthermore, no *Atriplex* species were observed during the site survey.
Subtle Orache (*Atriplex subtilis*)	1B.2	Occurs in grasslands; blooms August to October.	**Absent.** Suitable habitat for this species is absent from the Proposed Action/Project site. Furthermore, no *Atriplex* species were observed during the site survey.
Lost Hills Crownscale (*Atriplex vallicola*)	1B.2	Occurs in alkaline and saline grasslands, scrub; blooms April to August.	**Absent.** Suitable habitat for this species is absent from the Proposed Action/Project site. Furthermore, no *Atriplex* species were observed during the site survey.
Hispid Salty Bird's Beak (*Chloropyron molle ssp. hispidum*)	1B.1	Occurs in damp alkaline soils, especially in alkaline meadows and alkali sinks with *Distichlis spicata*. Blooms June–Sept.	**Absent.** Suitable habitat for this species is absent from the study area.
Hoover Cryptantha (*Cryptantha hooveri*)	1A	Possibly extinct, but known historically to occur in grasslands, sandy soil; blooms April to 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 (*Delphinium recurvatum*)	1B.2	Occurs in alkaline and saline grasslands, scrub; blooms March to 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 (*Navarretia prostrata*)	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 (*Sagittaria sanfordii*)	1B.2	Occurs in freshwater marsh, ditches, canals; blooms May to October.	**Absent.** Suitable habitat was largely absent for this species. No evidence of this species was observed within the site.
Wright's Trichocoronis (*Trichocoronis wrightii*)	2B.1	Occurs in mud flats of vernal lakes, drying river beds and alkali meadows; blooms March to September.	**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.

STATUS CODES:

CDFW listings under the Native Plant Protection Act, the California Endangered Species Act, and the federal Endangered Species Act (CDFW 2015c).

CE = California Endangered
FE = Federal Endangered

California Native Plant Society listings (CNPS 2015)

1A = presumed extinct in California
1B = rare and endangered in California and elsewhere
2B = Rare, Threatened, or Endangered in California, But More Common Elsewhere
4 = plants of limited distribution in California – watchlist species

Threat Code extensions:

.1 Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat)
.2 Fairly endangered in California (20-80% of occurrences threatened)
.3 Not very endangered in California (< 20% of occurrences threatened or no current threats known.

Table 3-2 - List of Special Status Animal Species

Species	Status	Habitat	*Occurrence in the Study Area
Conservancy Fairy Shrimp (*Branchinecta conservatio*)	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 Proposed Action/Project site.
Vernal Pool Fairy Shrimp (*Branchinecta lynchi*)	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 Proposed Action/Project site.
Vernal Pool Tadpole Shrimp (*Lepidurus packardi*)	FE	Occurs in vernal pools of California containing clear to highly turbid water.	**Absent.** Vernal pools required by this species are absent from the Proposed Action/Project site.
Valley Elderberry Longhorn Beetle (*Desmocerus californicus dimorphus*)	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 Proposed Action/Project site and surrounding lands.
Delta Smelt (*Hypomesus transpacificus*)	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 Proposed Action/Project site is situated well outside of the known distribution of this species.
Steelhead (Central Valley ESU) (*Oncorhynchus mykiss irideus*)	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) (*Oncorhynchus tshawytscha*)	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.	**Low 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 Proposed Action/Project site. Spawning habitat is absent from the Proposed Action/Project site.
California Tiger Salamander (*Ambystoma californiense*)	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 Proposed Action/Project site and surrounding lands.
California Red-Legged Frog (*Rana aurora draytonii*)	FT	Perennial rivers, creeks and stock ponds of the Coast Range and northern Sierra foothills with overhanging vegetation.	**Absent.** The Proposed Action/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 (*Gambelia sila*)	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 Proposed Action/Project site have eliminated all habitats potentially suitable for this species.
Giant Garter Snake (*Thamnophis gigas*)	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 Proposed Action/Project area.

Bald Eagle (*Haliaeetus leucocephalus*)	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 (*Aquila chrysaetos*)	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 Proposed Action/Project site.
American Peregrine Falcon (*Falco peregrinus anatum*)	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 (*Buteo swainsoni*)	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 (*Chardrius montanus*)	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 Proposed Action/Project area.
Nelson's antelope squirrel (*Ammospermophilus nelsoni*)	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 Proposed Action/Project site and surrounding lands.
Fresno Kangaroo Rat (*Dipodomys nitratoides exilis*)	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 Proposed Action/Project site and surrounding lands.
San Joaquin Kit Fox (*Vulpes macrotis mutica*)	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.

State Species of Special Concern

Species	Status	Habitat	*Occurrence in the Study Area
Chinook Salmon - Central Valley Fall/Late Fall (*Oncorhynchus tshawytscha*)	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 gravely 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 Proposed Action/Project site. Spawning habitat is absent from the Proposed Action/Project site.
Hardhead (*Mylopharodon conocephalus*)	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 (*Pogonichthys macrolepidotus*)	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 Proposed Action/Project site.
Western Spadefoot (*Spea hammondii*)	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 (*Emys marmorata*)	CSC	Occurs in suitable aquatic habitats such as ponds and rivers throughout California.	**Unlikely.** The intermittent flows of the SJR on the Proposed Action/Project site result in only marginal habitat for this species.
Blainville's Horned Lizard (*Phrynosoma blainvillii*)	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.
Northern Harrier (*Circus cyaneus*)	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 (*Elanus leucurus*)	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 (*Strix occidentalis occidentalis*)	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 Proposed Action/Project site.
Short-eared owl (*Asio flammeus*)	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 Proposed Action/Project site.

Burrowing Owl (*Athene cunicularia*)	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 Proposed Action/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 (*Lanius ludovicianus*)	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 Proposed Action/Project site and surrounding lands during the field survey. Suitable nesting habitat is available on the Proposed Action/Project site.
Tricolored Blackbird (*Agelaius tricolor*)	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 Proposed Action/Project site in California rose thickets along the east bank of the SJR. Foraging habitat is present throughout the site.
Yellow-headed Blackbird (*Xanthocephalus xanthocephalus*)	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 Proposed Action/Project site. However, potential foraging habitat is present.
American Badger (*Taxidea taxus*)	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 site at time of field surveys or during recent past.
Likely: Species not observed on the site, but it may reasonably be expected to occur there on a regular basis.
Possible: Species not observed on the site, but it could occur there from time to time.
Unlikely: Species not observed on the site, and would not be expected to occur there except, perhaps, as a transient
Absent: Species not observed on the site, and precluded from occurring there because habitat requirements were not met.

STATUS CODES

FE	Federally Endangered	CE	California Endangered
FT	Federally Threatened	CT	California Threatened
FPT	Federally Proposed Threatened	CSC	California Species of Special Concern
FC	Federal Candidate	CNPS	California Native Plant Society Listing
FD	Federally Delisted	CFP	California Fully Protected

3.2.2 Environmental Consequences

No Action/Project Alternative

No changes in conditions or habitats would occur under the No Action Alternative. Therefore, the No Action Alternative would not result in changes to biological resources or habitats.

Proposed Action/Project

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, 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 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, and the Central Valley Regional Water Quality Control Board are present within the Proposed Action/Project site.

The Proposed Action/Project would have no effect on special status plant species or designated critical habitat and minimal potential to affect fish and wildlife habitat and movement corridors, special status wildlife species, including San Joaquin kit fox, Fresno kangaroo rat and spring-run Chinook salmon (see Appendix D). The Proposed Action/Project would be consistent with local ordinances protecting biological resources.

San Joaquin Kit Fox

Construction vehicles and activities involved with the proposed action have the potential to affect San Joaquin kit fox, since the species could use the action area as denning habitat or as a movement corridor. The action area is surrounded by cultivated farmlands. The action area is seasonally wet and subject to inundation, which normally creates unsuitable conditions for denning habitat. Despite the lack of high quality denning and foraging habitat, records in this area indicate that San Joaquin kit fox may use the Action Area as denning habitat or a movement corridor. Best Management Practices and avoidance and minimization measures to help reduce the potential Project effects on SJKF, as described in Section 2.2.1 will be implemented to avoid and minimize potential impacts to SJKF that may use the Action Area as a movement corridor.

Considering that the Proposed Action/Project Area does not contain high quality denning habitat due to seasonal flooding, it has marginal to poor suitability as foraging habitat, Project activities will occur during the daytime when kit foxes are not active, and that avoidance and minimization measures will be implemented, the Proposed Action/Project would have discountable effects on SJKF. Reclamation is preparing a request for informal consultation with the Service in accordance with Section 7 of the Endangered Species Act (ESA) on the Project's potential effects on SJKF and Fresno kangaroo rats.

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 has completed informal consultation with USFWS on the effects of the Proposed Action/Project 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.

Chinook Salmon/Fish

~~While~~ Spring-run Chinook salmon, as well as other fish, including other salmonids, could potentially occur in the Action Area when Restoration Flows are providing for river connectivity, ~~it is currently unknown if that will~~ which is likely to occur in 2016, ~~depending on hydrology~~. Activities under the proposed action would occur when the Proposed Action/Project Area is dry, and will be coordinated, with the input of the SJRRP Restoration Administrator, to occur when the potential for impacts to special status salmonids are avoided and minimized, as described by the environmental commitments in section 2.2.1. ~~to the extent feasible. Prior to construction activities, Reclamation will coordinate with the Implementing Agencies on the specific actions planned to dewater the Action Area and develop a plan for potential fish rescue activities, as appropriate.~~ Th~~is and other~~e Best Management Practices and avoidance and minimization measures, as described in Section 2.2.1 will be implemented to avoid and minimize potential impacts on special status salmonids.

NMFS has designated the spring-run Chinook salmon being reintroduced to the San Joaquin River as a Non-essential Experimental Population (NEP) in accordance with Section 10(j) of the Endangered Species Act (ESA). Therefore, Reclamation has requested informal conference with NMFS in accordance with Section 7(a)(4) of the ESA on the Project's potential effects, on spring-run Chinook salmon and informal consultation in accordance with Section 7(a)(2) on the Project's potential effects on California Central Valley steelhead.

Project construction activities, would adversely affect Pacific Coast Salmon EFH, because the San Joaquin River bed is considered to be EFH by NMFS. During construction, the Project may cause a temporary introduction of pollutants into the ~~Eastside Bypass when~~ dry riverbed during construction, and indirectly into the San Joaquin River during flow passage. All of the potential adverse impacts would be temporary in nature and relatively small since the Proposed Action would disturb less than an acre of EFH. Implementation of the proposed action, including the measures in Section 2.2.1, would avoid and minimize adverse effects to EFH to the extent possible.

Migratory Birds

Potential impacts to migratory birds 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 Proposed Action/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 Proposed Action/Project construction. Measures appropriate for mitigating Proposed Action/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 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. Should riparian trees be removed as a result of Proposed Action/Project construction, replacement plantings and monitoring will reduce impacts to riparian habitat. The Proposed Action/Project would not have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species; or on riparian habitats, sensitive natural communities, or federally protected wetlands, with implementation of the mitigation measures described in Appendix A and Section 2.2.1, above.

3.3 Land Use

3.3.1 Affected Environment

The Red Top Area is primarily agricultural in use with the primary plantings consisting of almonds, pistachios, vineyards, and alfalfa crops. While in the CVP place-of-use, the area generally does not rely on surface water supplies and obtains irrigation via groundwater wells. Land use changes in the area have occurred over the past several years, resulting in more permanent crops and less pasture land and row crops.

3.3.2 Environmental Consequences

No Action/Project Alternative

Under the No Action/Proposed Project Alternative, MID and CWD would not facilitate a transfer and/or exchange to the Red Top Area and the agricultural lands in the vicinity would continue to be irrigated utilizing the existing groundwater wells, or by potentially sinking more wells ~~in~~

~~order~~ to meet the irrigation demands. Additionally the turnout at Poso Canal, and a SJR crossing would not be constructed. Although land use would not change with the No Action alternative it would be impacted by the continued subsidence in the area. This continued subsidence poses difficulties for local, state, and federal agencies with existing or planned infrastructure in the area, impacting existing and future land uses.

Proposed Action/Project

Under the Proposed Action/Project, there would not be any land conversions and no land fallowing or habitat restoration would be deferred as a result of the ten year transfer. While land use changes have occurred in the Red Top area, this action is not intended to facilitate further changes. The Proposed Action/Project seeks to provide surface water supplies in lieu of groundwater supplies to address an existing concern related to subsidence, not to actively change land use (as this has already occurred in absence of the Proposed Action/Project). Existing land use is agricultural and this is not expected to change as a result of the transfer of water under the Proposed Action/Project. The Proposed Action/Project is intended to provide alternate supplies to abate an existing groundwater depletion concern and provide a temporary, ten-year activity to help to slow or eliminate subsidence rates. The action is not intended to create long-term viable surface water supplies to continue additional land use changes in the defined Red Top Area. Therefore, no adverse impacts to land use would occur.

3.4 Cultural and Paleontological Resources

"Cultural resources" is a broad term that applies to prehistoric and historic-era archaeological sites and structures, components of the built environment, and traditional cultural properties, all of which provide evidence of human behaviors, economic activities, and cultural traditions, both past and present. The National Historic Preservation Act (NHPA) of 1966 (54 U.S.C. § 300101 et seq.) is the primary legislation outlining the Federal government's responsibilities related to the identification and preservation of significant cultural resources. Cultural resources that are included in, or eligible for inclusion in, the National Register of Historic Places (NRHP) are known as "historic properties." 54 U.S.C. § 306108, commonly known as Section 106 of the NHPA, requires Federal agencies to take into consideration the effects of their undertakings on historic properties. The CEQA process is the primary State process for considering effects to cultural resources. CEQA requires State and local governments to identify cultural resources that could be eligible for inclusion or listing on the California Register of Historic Resources (CRHR). Those resources that are eligible for listing on the CRHR are called "historic resources."

The Section 106 process is outlined in the Federal regulations at 36 Code of Federal Regulations (CFR) Part 800. These regulations describe the process a Federal agency follows to identify and determine the level of effect a proposed undertaking would have on historic properties. The Section 106 process requires consultation with the State Historic Preservation Officer (SHPO), Indian tribes that may have concerns about effects on sites of religious or cultural significance, and other parties, as appropriate.

3.4.1 Affected Environment

The Central Valley of California is abundant with cultural resources ranging from small archaeological sites to pre-historic villages, and historic-era resources ranging from bridges and

buildings to canals and roads. The contemporary landscape in much of the Central Valley consists of agricultural fields of permanent and rotational crops, supporting infrastructure such as water conveyance systems, roads, farm outbuildings, residences, and other components of the built environment.

In an effort to identify significant cultural resources (i.e., historic properties and/or historic resources) that may be impacted by the Proposed Action/Project, the District contracted with Applied Earthworks, Inc. to conduct a cultural resources inventory of the project area. These efforts, which are documented in a report prepared by Applied Earthworks, Inc. (2015) (Appendix D) included a records search through the Southern San Joaquin Valley Information Center (SSJVIC) branch of the California Historical Resources Information System and pedestrian surveys ~~of~~ the Vlot-Triangle T Crossing and the associated staging area. In addition, Applied Earthworks, Inc. analyzed the Proposed Action/Project area to identify the potential for buried cultural resources, using geological and historic maps, geologic/sediment databases, geoarchaeological studies, and soil surveys. These combined efforts resulted in the identification of one cultural resource, the Poso Canal, which was determined to not be individually eligible for inclusion or listing on the NRHP or the CRHR.

As required under Section 106 of the NHPA, and based on a contacts list provided by the California Native American Heritage Commission (NAHC), Reclamation identified the Picayune Rancheria of Chukchansi Indians as an Indian tribe that may attach religious and cultural significance to properties in the Proposed Action/Project area and invited them, through written correspondence, to participate as a Section 106 consulting party for the current undertaking. Based on the NAHC contacts list, Reclamation also sent letters to representatives of the non-federally recognized Chowchilla Tribe of Yokuts, Dumna Wo-Wah Tribal Government, Sierra Nevada Native American Coalition, and Wuksache Indian Tribe/Eshom Valley Band seeking information on significant cultural resources. To date, Reclamation has received no responses from the Indian tribe and Native American organizations and individuals contacted.

3.4.2 Environmental Consequences

No Action/Project Alternative

Under the No Action Alternative, there would be no impacts to cultural resources since there would be no change in operations and no ground disturbance. Conditions related to cultural resources would remain the same as existing conditions.

Proposed Action/Project

The Proposed Action/Project, which involves the construction of a new turnout at the Poso Canal and the Red Top Pipeline crossing, involves the type of activity that has the potential to cause effects to historic properties pursuant to 36 CFR § 800.3(a)(1) and impact historic resources under CEQA. Based on the results of the cultural resources identification efforts conducted by Applied Earthworks, Inc., and after seeking input from Indian tribes and other Native American organizations and individuals identified by the California Native American Heritage Commission (NAHC) as having a known interest in the Proposed Action/Project area, Reclamation reached a Section 106 finding of "no historic properties affected" for the current undertaking, pursuant to 36 CFR § 800.4(d)(1).

Reclamation has received concurrence from ~~must consult with the~~ SHPO on this finding ~~and conclude the Section 106 consultation process for this undertaking prior to final approval of the Proposed Action/Project~~. Based on the findings as outlined above, Reclamation concludes that the Proposed Action/Project will have no significant impact on cultural resources under NEPA. In the event that previously unidentified cultural resources are encountered during construction of the Volt-Triangle T Crossing, further Section 106 review and consultation pursuant to 36 CFR 36 CFR § 800.13 will be required. In such an event, implementation of the following mitigation measures identified in Section 2.2.1 will ensure less than significant impacts to cultural resources under CEQA.

3.5 Indian Trust Assets

3.5.1 Affected Environment

Indian Trust Assets (ITA) are legal interests in assets that are held in trust by the United States (U.S.) for federally recognized Indian tribes or individuals. The trust relationship usually stems from a treaty, executive order, or act of Congress. The Secretary of the Interior is the trustee for the U.S. on behalf of federally recognized Indian tribes. "Assets" are anything owned that holds monetary value. "Legal interests" means there is a property interest for which there is a legal remedy, such as compensation or injunction, if there is improper interference. ITAs cannot be sold, leased or otherwise alienated without the U.S.' approval. "Assets" can be real property, physical assets, or intangible property rights, such as a lease, or right to use something; which may include lands, minerals and natural resources in addition to hunting, fishing, and water rights. Indian reservations, rancherias, and public domain allotments are examples of lands that are often considered trust assets.

In some cases, ITAs may be located off trust land. Reclamation shares the Indian Trust responsibility with all other agencies of the Executive Branch to protect and maintain ITAs reserved by or granted to Indian tribes, or Indian individuals by treaty, statute, or Executive Order.

3.5.2 Environmental Consequences

No Action/Project Alternative

Under the No Action Alternative, there would be no impacts to ITA as there would be no ground-disturbing activities and conditions would remain the same as existing conditions.

Proposed Action/Project

Approval of the transfer and/or exchange between MID and CWD and the Red Top area and the corresponding pipeline construction would not impact any ITAs.

3.6 Indian Sacred Sites

Executive Order 13007 provides that in managing Federal lands, each Federal agency with statutory or administrative responsibility for management of Federal lands would, to the extent

practicable and as permitted by law, accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners, and avoid adversely affecting the physical integrity of such sacred sites.

3.6.1 Affected Environment

The Proposed Action/Project involves construction of a groundwater recharge facility on land that is not owned by a federal agency and therefore is not subject to Executive Order 13007. Additional information about how the Proposed Action/Project would comply with local state requirements regarding Native American consultation is discussed in Appendix D.

3.6.2 Environmental Consequences

No Action/Project Alternative

Under the No Action Alternative, there would be no impacts to Indian sacred sites since conditions would remain the same as existing conditions.

Proposed Action/Project

The Proposed Action/Project is not located on Federal lands and does not limit access to any known resources on Federal lands. As a result there is no impact to Indian Sacred Sites as defined by Executive Order 13007.

3.7 Air Quality

3.7.1 Affected Environment

The Proposed Action/Project lies within the San Joaquin Valley Air Basin (SJVAB), the second largest air basin in the State. Air basins share a common "air shed", the boundaries of which are defined by surrounding topography. Although mixing between adjacent air basins inevitably occurs, air quality conditions are relatively uniform within a given air basin. The San Joaquin Valley experiences episodes of poor atmospheric mixing caused by inversion layers formed when temperature increases with elevation above ground, or when a mass of warm, dry air settles over a mass of cooler air near the ground.

Despite years of improvements, the SJVAB does not meet some State and Federal health-based air quality standards. To protect health, the San Joaquin Valley Air Pollution Control District (SJVAPCD) is required by Federal law to adopt stringent control measures to reduce emissions. On November 30, 1993, the Environmental Protection Agency (EPA) promulgated final general conformity regulations at 40 CFR 93 Subpart B for all federal activities except those covered under transportation conformity. The general conformity regulations apply to a proposed Federal action in a non-attainment or maintenance area if the total of direct and indirect emissions of the relevant criteria pollutants and precursor pollutant caused by a proposed action equal or exceed certain emissions thresholds, thus requiring the Federal agency to make a conformity determination. Table 3 below presents a summary of ambient air quality standards and attainment designation of the SJVAB, while Table 3-3 presents the emissions thresholds of the SJVAPCD covering the Proposed Action/Project location's overlying air basin.

Table 3-3 - Summary of Ambient Air Quality Standards and Attainment Designations

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	
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 µg/m3 (42 µg/m3)	Unclassified		
Vinyl Chloride	24-hour	0.01 ppm (26 µg/m3)	Attainment		
Visibility-Reducing Particulate Matter	8-hour	Extinction coefficient: 0.23/km-visibility of 10 miles of more (0.07-30 miles or more for Lake Tahoe) due to particles when the relative humidity is less than 70%.	Unclassified		

Table 3-4 - San Joaquin Valley Air Pollution Control District Thresholds of Significance

Pollutant	Construction Emissions (Tons/year)	Operation Emissions (Tons/year)
VOC/ROG (as an ozone precursor)	10	10
NO_x (as an ozone precursor)	10	10
PM_{10}	15	15
$PM_{2.5}$	15	15
CO	100	100
SO_x	27	27

Sources SJVAPCD, May 2015.

Emissions from the Proposed Action/Project will be associated with construction activities. Construction of the Proposed Action/Project would be accomplished with scrapers, graders, compactors, trenchers, backhoes, forklifts, front end loaders, water trucks, and materials and equipment hauling trucks. Construction is anticipated to involve 10-12 workers who would work in single shifts, five days per week. It has been estimated that construction activities will take 40 working days to complete.

3.7.2 Environmental Consequences

No Action/Project Alternative

Under the No Action Alternative, there would be no impacts to air quality since no construction would take place.

Proposed Action/Project

There is one rural residence located approximately 230 feet south of the Proposed Action/ Project site. Short-term air quality impacts would be associated with construction, and would generally arise from dust generation (fugitive dust) and operation of construction equipment. Fugitive dust results from land clearing, grading, excavation, concrete work, and vehicle traffic on paved and unpaved roads. Fugitive dust is a source of airborne particulates, including PM_{10} and $PM_{2.5}$. Large earth-moving equipment, trucks, and other mobile sources powered by diesel or gasoline are also sources of combustion emissions, including nitrogen dioxide (NO_2), CO, carbon dioxide (CO_2), ROG, sulfur dioxide, and small amounts of air pollutants. Table 3-5 below provides a summary of the estimated emissions during construction of the Proposed Action/Project.

Table 3-5 - Maximum Unmitigated Construction Related Emissions

Pollutant	Proposed Action/Project Construction Emissions (Tons/year)	SVJAPCD Thresholds of Significance (Tons/year)
VOC/ROG (as an ozone precursor)	0.0739	10
NO_x (as an ozone precursor)	0.6236	10
PM_{10}	0.1266	15
$PM_{2.5}$	0.0839	15
SO_X	0.0006	27
CO	0.4836	100

Source: CalEEMod, September 2015 (see Attachment A)

Comparison of the estimated Proposed Action/Project construction emissions as seen above in Table 3-5, with the thresholds for of significance for the San Joaquin Valley Air Basin, indicates that emissions are estimated to be below these thresholds. Proposed Action/Project operations would not contribute to criteria pollutant emissions, as the turnout and pipeline are passive and would not require any additional operation and/or maintenance tasks. Therefore, construction and operations under the Proposed Action/Project would not result in adverse impacts to air quality beyond Federal thresholds.

3.8 Global Climate Change

Climate change refers to change in measures of climate (e.g., temperature, precipitation, or wind) lasting for decades or longer. Many environmental changes (changes in sun's intensity, changes in ocean circulation, deforestation, urbanization, burning fossil fuels, etc.) can contribute to climate change (EPA 2009a). Gases that trap heat in the atmosphere are often called greenhouse gases (GHG). Some GHG such as CO_2 occur naturally and are emitted to the atmosphere through natural processes and human activities. Other GHG (e.g., fluorinated gases) are created and emitted solely through human activities. The principal GHGs that enter the atmosphere as a result of human activities are: CO_2, methane (CH_4), nitrous oxides, and fluorinated gasses (EPA 2009a). During the past century, humans have substantially added to the amount of GHGs in the atmosphere by burning fossil fuels such as coal, natural gas, oil, and gasoline to power our cars, factories, utilities, and appliances. The added gases, primarily CO_2 and CH_4, are enhancing the natural greenhouse effect, and likely contributing to an increase in global average temperature and related climate changes. At present, there are uncertainties associated with the science of climate change (EPA 2009). More than 20 million Californians rely on regulated delivery of water resources such as the State Water Project and the CVP, as well as established water rights from rivers. Increases in air temperature may lead to changes in precipitation patterns, runoff timing and volume, sea level rise, and changes in the amount of irrigation water needed due to modified evapotranspiration rates. These changes may lead to impacts to the State's water resources and Proposed Action/Project operations. While there is general consensus in their

trend, the magnitudes and onset-timing of impacts are uncertain and are scenario-dependent (Anderson et al. 2008).

3.8.1 Affected Environment

In 2002, with the passage of Assembly Bill 1493, the State launched an innovative and proactive approach to dealing with GHG emissions and climate change at the state level. Assembly Bill 1493 requires the California Air Resources Board to develop and implement regulations to reduce automobile and light truck GHG emissions. The State also adopted Assembly Bill 32, which identified GHG reduction goals and noted the effect of increased GHG emissions as they relate to global climate change. While the emissions of one single project would not cause global climate change, GHG emissions from multiple projects throughout the world could result in an adverse impact with respect to global climate change.

3.8.2 Environmental Consequences

No Action Alternative

Under the No Action Alternative, there would be no increase in emissions and, therefore, it is reasonable to assume there would be no impacts or change to GHG emissions. However, the lack of a surface water supply would indicate that the Red Top area would continue to pump groundwater from pumps that currently utilize petroleum as a fuel source and these pumps would continue to generate GHGs associated with the combustion of fossil fuels.

Proposed Action

The Proposed Action/Project would involve short-term impacts consisting of emissions during construction. 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. The estimated unmitigated overall GHG emission due to temporary Proposed Action/Project construction activities (see Attachment A - CEQA – Initial Study Checklist) is 57.46 metric tons of carbon dioxide equivalents. Since the amount of GHGs emitted from the Proposed Action/Project is well below 25,000 metric tons/year threshold, no report is required to be submitted to the U.S. EPA and California Air Resources Board (CARB). Accordingly, construction and operation under the Proposed Action/Project would result in below *de minimis* impacts to the global climate. The anticipated effects of climate change over the 10-year term of the proposed Proposed Action/Project would not adversely affect the Proposed Action/Project.

3.9 Agriculture Resources

Agricultural is the dominant land use practice within the region surrounding the Proposed Action/Project area. It is identified as the largest private employer in the region.

3.9.1 Affected Environment

A review of the "Important Farmlands" mapping by the California Department of Conservation's (DOC's) Farmland Mapping and Monitoring Program (FMMP) shows that the Proposed Action/ Project site is designated as natural vegetation and Semi-Agricultural. Surrounding properties are designated as Prime Farmland, with the exception of additional natural vegetation and Semi-

Agricultural lands surrounding the crossing and staging area. The land designated as natural vegetation running along the San Joaquin River is currently devoid of development, while the Semi-Agricultural land which would contain part of the crossing and the staging area is mostly bare, with scattered buildings comprised of a rural residence and trees. The Proposed Action/Project is located on lands currently under Williamson Act contract, although as previously stated, the affected land is not in agricultural use.

No forest or timber land is present at the Proposed Action/Project site or in the Proposed Action/Project vicinity. According to the United States Department of Agriculture Natural Resources Conservation Service, there are three dominant soil types present within the site: Elnido sandy loam, Bisgani-Elnido association, and Columbia fine sandy loam, covering 17.4%, 19.8%, and 51.5% of the area, respectively. Water from the San Joaquin River covers the remaining 11.4% of the Proposed Action/Project area. The Elnido and Bisgani soil series' are poorly drained and originate from alluvium derived from igneous rock, while the Columbia soil is somewhat poorly drained and originates from coarse-loamy alluvium derived from igneous, metamorphic and sedimentary rocks.

3.9.2 Environmental Consequences

No Action/Project Alternative

Under the no action alternative, lands within the Proposed Action/Project area would be unchanged. There would be no alteration of agricultural lands or conversion of lands out of agricultural production. Because the Proposed Action/Project would not be built, there would be no impacts resulting from the selection of the No Action Alternative. In addition, continued effects on agricultural lands and their infrastructure due to subsidence would continue with the No Action Alternative.

Proposed Action/Project Alternative

The Proposed Action/Project would include the construction of a new turnout and San Joaquin River crossing, consisting of a pipeline that would connect the new turnout at the Poso Canal to existing pump stand on the other side of the river. This would facilitate the delivery of surface water supplies to the Red Top Area, where it could be made available through transfers and exchanges with various water agencies. The Proposed Action/Project would help local agricultural efforts in a variety of ways. It would allow for (1) connection to existing on-farm distribution facilities that allow for flexibility of conveyance of shallow groundwater in the region to reduce the reliance on pumping below the Corcoran Clay layer, (2) allow local landowners to divert flood water to on-farm percolation basins, where it would then percolate into the shallow groundwater aquifer where it can be stored for future, more sustainable, pumping, (3) allow local water and irrigation districts to provide surface water supplies to help augment Red Top Area landowners groundwater pumping.

Proposed Action/Project construction would not convert farmland to non-farmland uses. The proposed site is zoned for agricultural uses and while it is under a Williamson Act Contract, the majority of the Proposed Action/Project would be an underground pipeline and it would support agricultural uses by ensuring the efficient delivery and use of surface water.

3.10 Geology and Soils

3.10.1 Affected Environment

Fresno and Madera Counties are both divided into two major physiographic provinces: the Sierra Nevada Mountains and the Great Valley. The Sierra Nevada is a tilted fault block with a high, rugged scarp on the east face and a gentle western slope. The western slope disappears under Great Valley sediments. The Great Valley, commonly referred to as the Central Valley of California, is an alluvial plain which has undergone sediment deposition since the Jurassic.[1]

Faulting and Seismicity

The Proposed Action/Project site is not located within an Alquist-Priolo Earthquake Fault Zone and no known faults cut through the local soil at the site. There are several faults located within a 50 mile radius of the Proposed Action/Project site. The San Joaquin Fault is approximately 17.5 miles west/southwest, the O'Neill fault system is 20 miles west/southwest, the Ortigalita fault system is 22.5 miles west/southwest, and the San Andreas Fault is approximately 45 miles southwest of the Proposed Action/Project site.

Soils

According to the United States Department of Agriculture Natural Resources Conservation Service, there are three dominant soil types present within the Proposed Action/Project site: Elnido sandy loam, Bisgani-Elnido association, and Columbia fine sandy loam, covering 17.4%, 19.8%, and 51.5% of the area, respectively. Water from the San Joaquin River covers the remaining 11.4% of the Proposed Action/Project area. The Elnido and Bisgani soil series' are poorly drained and originate from alluvium derived from igneous rock, while the Columbia soil is somewhat poorly drained and originates from coarse-loamy alluvium derived from igneous, metamorphic and sedimentary rocks.

3.10.2 Environmental Consequences

No Action/Project Alternative

Under the no Action Alternative, there would be no water transfer or construction related activities. Current conditions would prevail. There would be no impacts to geology and soils resulting from selection of the no action alternative.

Proposed Action/Project Alternative

The Proposed Action/Project site is relatively flat which would reduce the potential for erosion and loss of soil to a certain degree. The construction of the proposed turnout and pipeline would require grading and excavation, which would disturb approximately two acres of ground. To further prevent water and wind erosion during the construction period, a Storm Water Pollution Prevention Plan (SWPPP) will be prepared and implemented 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 will provide erosion control measures to protect the topsoil. Any stockpiled soils would be watered and/or covered to prevent loss due to

[1] California Department of Conservation, California Geological Survey (2002). California Geomorphic Provinces

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. Construction of the crossing would require temporary disturbance of the channel area by the clearing of riparian vegetation. A geotechnical investigation would be conducted within the proposed alignment prior to construction to determine the soil profiles, associated soil types and groundwater elevations. The investigation would 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 qualified biologist's approved seed mixture of native plants. This will further limit erosion and loss of topsoil.

No substantial faults are known to exist in the Proposed Action/Project area according to the Alquist-Priolo Earthquake Fault Zoning Map; thus the Proposed Action/Project would have no impact regarding the danger associated with geologic instability. According to the United States Department of Agriculture Natural Resources Conservation Service, the site contains three soil mapping units representing three soil series: Elnido sandy loam, 0 to 1 percent slopes; Bisgani-Elnido association, 0 to 1 percent slopes; and Columbia fine sandy loam, 0 to 1 percent slopes.

3.11 Noise

3.11.1 Affected Environment

The Proposed Action/Project site is comprised of Semi Ag and natural vegetation designated lands. It is surrounded by Prime Farmland currently in agricultural use, the San Joaquin River, and a rural residence approximately 230 feet north of the staging area.

Noise levels generated by farm related equipment ranged from 77 to 85 dB at a distance of 50 feet from the equipment, and Fresno County has identified the normally acceptable noise range for agricultural land uses as between 50 to 75 dB[2]. This excludes temporary, seasonal noises such as the tractor levels referenced above. 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.

3.11.2 Environmental Consequences

No Action/Project Alternative

If the no action alternative is selected, there would be no changes to the current setting. The current noise levels would persist related to agricultural activities and the nearby rural residence. There would be no impacts to noise if the no action alternative is selected.

Proposed Action/Project Alternative

The Proposed Action/Project includes the construction of a new turnout and the Red Top Pipeline crossing ~~over~~ the San Joaquin River. Construction would be conducted during daylight hours on weekdays, and involve removal of vegetation, trenching, placing of pipeline, backfilling, and compaction. Construction activity is expected to require 40 working days to

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

complete. Construction equipment is expected to include the use of graders, compactors, backhoes, excavators, forklifts, skid steers, front-end loaders, generators, water trucks and materials and equipment hauling trucks. The noise and vibration associated with these construction activities depends on the equipment used and distance from the source to the receptor.

Typical construction equipment would include scrapers, backhoes, drilling rigs and miscellaneous equipment (i.e. pneumatic tools, generators, and portable air compressors). Typical noise levels generated by this type of construction equipment at various distances from the noise source are listed below:

Table 3-6 – Typical Construction Noise Levels

Construction Equipment Noise Source	dBA at 50 ft Without Feasible Noise Control	dBA at 50 ft With Feasible Noise Control
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

Activities involved in construction would generate noise levels as indicated in the table above, 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. There is one rural residence located approximately 230 feet north of the Proposed Action/Project site. According to the Federal Transit Administration, the noise decibel is reduced on average by 5 decibels for every additional 50 feet, reducing the expected noise level from the residence after feasible control to a range of approximately 57 to 62 dB. Noise from construction activities would therefore not exceed the Fresno County General Plan (2000) "normally acceptable" noise standards of 75 dBA at the exterior of nearby residences. Additionally, noise from construction activities would be temporary and construction activities would be limited to daytime hours. Best practices guidelines would be implemented as appropriate and feasible in accordance with Fresno and Madera County General Plan policies.

3.12 Cumulative Impacts

Biological resources would continue to be affected by other types of activities that are ongoing but unrelated to the Proposed Action/Project. Impacts to biological and cultural resources from the implementation of the Proposed Action/Project would occur only during construction activities. The Proposed Action/Project would not have a substantial adverse effect, either directly or indirectly, on any resource category. Therefore, the Proposed Action/Project, when

added to other similar past, existing, and future actions would not contribute to cumulative adverse impacts to any resources since construction activities are short-term.

The proposed transfer actions would not be precedent-setting and would have a beneficial impact on the current subsidence that is occurring in the Red Top Area.

Section 4 Consultation and Coordination

4.1 National Environmental Policy Act

This EA/IS has been prepared pursuant to NEPA, which was signed into law in 1969 (42 USC Section 4321 et seq.). In addition, it was prepared in accordance with CEQ regulations for implementing NEPA, 40 CFR Parts 1500- 1508, ~~and General Services Administration (GSA) Order ADM 1095.1F~~. This EA/IS analyzes and discloses the potential impacts to the human environment from implementation of the proposed action. This EA/IS ~~will be~~ was circulated for public review for 30 days. Comments were received from 6 entities. Comments received and responses to those comments are included in the attached Response to Comments, dated May 2016.

4.2 Endangered Species Act

Section 7 of the Endangered Species Act (ESA) requires Federal agencies, in consultation with the Secretary of the Interior, to ensure that their actions do not jeopardize the continued existence of endangered or threatened species, or result in the destruction or adverse modification of the critical habitat of these species. Reclamation conducted informal consultation with the USFWS on potential effect of the proposed action on SJKF and Fresno kangaroo rats. The proposed action includes implementation of avoidance and minimization measures as described in Section 3.2.2. Reclamation has determined that the Proposed Action/Project is not likely to adversely affect SJKF and Fresno kangaroo rats. USFWS concurred with this determination.

As described in Section 3.2, the Central Valley spring-run Chinook salmon that could occur in the project vicinity have been designated as a NEP, in accordance with Section 10j of the ESA, and therefore should be considered as a species proposed for listing under the ESA. As described in Section 3.2, implementation of environmental commitments, as described in Section 2.2.1, would avoid and minimize the potential for these effects so that the proposed action would not jeopardize the NEP of Central Valley spring-run Chinook salmon and would not adversely affect California Central Valley steelhead. Reclamation has requested informal conference with NMFS in accordance with Section 7(a)4 of the ESA and informal consultation with NMFS in accordance with Section 7(a)(2) on this determination.

4.3 Magnuson Stevens Fishery Conservation and Management Act

The Magnuson Stevens Fishery Conservation and Management Act establishes a management system for national marine and estuarine fishery resources. This legislation requires that all Federal agencies consult with NMFS regarding proposed actions that may adversely affect Essential Fish Habitat (EFH). The San Joaquin River is defined as (EFH). With the implementation of the environmental commitments listed in Section 2.2.1, the proposed action would avoid and minimize potential construction-related adverse effects to EFH to the extent feasible. Reclamation has consulted with NMFS on the proposed action's effects to EFH.

4.4 Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act (FWCA) requires that Reclamation consult with fish and wildlife agencies (federal and state) on all water development projects that could affect biological resources. Reclamation has coordinated with USFWS on FWCA issues.

4.5 National Historic Preservation Act

Pursuant to 36 CFR Part 800, Reclamation is required to follow the Section 106 process and consult with the SHPO when an undertaking has the potential to cause effects on historic properties, assuming such properties are present. Based on the results of the historic properties identification efforts associated with the Proposed Action/Project, Reclamation has received concurrence ~~is consulting with~~ from the SHPO on a finding of no historic properties affected, pursuant to 36 CFR § 800.4(d)(1). ~~Completion of SHPO consultation and the Section 106 process must take place prior to approval of the Proposed Action/Project by Reclamation.~~

4.6 Migratory Bird Treaty Act

The MBTA implements various treaties and conventions between the U.S. and Canada, Japan, Mexico and the former Soviet Union for the protection of migratory birds. Unless permitted by regulations, the MBTA provides that it is unlawful to pursue, hunt, take, capture or kill; attempt to take, capture or kill; possess, offer to or sell, barter, purchase, deliver or cause to be shipped, exported, imported, transported, carried or received any migratory bird, part, nest, egg or product, manufactured or not. Subject to limitations in the MBTA, the Secretary of the Interior may adopt regulations determining the extent to which, if at all, hunting, taking, capturing, killing, possessing, selling, purchasing, shipping, transporting or exporting of any migratory bird, part, nest or egg would be allowed, having regard for temperature zones, distribution, abundance, economic value, breeding habits and migratory flight patterns. As described in Section 3.2.2, mitigation measures would be implemented to avoid any impacts to MBTA protected species.

4.7 Executive Order 12898 – Environmental Justice in Minority and Low-Income Populations

Executive Order 12898 requires Federal agencies to identify and address disproportionately high and adverse human health and environmental effects of Federal programs, policies, and activities on minority and low-income populations. The Proposed Action/Project would not cause dislocation, changes in employment, or increase flood, drought, or disease nor would it disproportionately impact economically disadvantaged or minority populations.

4.8 Clean Water Act (33 U.S.C. § 1251 et seq.)

Section 401 of the Clean Water Act (33 U.S.C. § 1311) prohibits the discharge of any pollutants into navigable waters, except as allowed by permit issued under sections 402 and 404 of the Clean Water Act (33 U.S.C. § 1342 and 1344). The Proposed Action/Project would require a 401 and a 404 permit. Central California ID has applied for a Section 404 permit from the Corps for activities associated with the Proposed Action/Project. Central California ID has also applied for a Section 401 permit from the California Regional Water Quality Control Board. Section 401 requires any applicant for an individual Corps dredge and fill discharge permit to first obtain certification from the state that the activity associated with dredging or filling will comply with applicable state effluent and water quality standards. This certification must be approved or waived prior to the issuance of a permit for dredging and filling. Section 404 of the Clean Water Act authorizes the Corps to issue permits to regulate the discharge of "dredged or fill materials into waters of the United States" (33 U.S.C. § 1344). The conditions and requirements of the 404 Permit would be strictly adhered to as part of the Proposed Action/Project implementation. The District has applied for both a Section 404 permit and a Section 401 Water Quality Certification. Construction activities will not occur until the District has received these permits.

4.9 Central Valley Project Improvement Act

Reclamation's evolving mission was written into law on October 30, 1992, in the form of Public Law 102-575, the Reclamation Projects Authorization and Adjustment Act of 1992. Included in the law was Title 34, the CVPIA. The CVPIA amended previous authorizations of the CVP to include fish and wildlife protection, restoration, and mitigation as project purposes having equal priority with irrigation and domestic water supply uses, and fish and wildlife enhancement as having equal priority with power generation. The Proposed Action/Project is consistent with CVPIA.

4.10 Central Valley Project Long-Term Water Service Contracts

In accordance with CVPIA Section 3404c, Reclamation is renegotiating long-term water service contracts. As many as 113 CVP water service contracts locations within the Central Valley of California may be renewed during this process. The Proposed Action/Project is consistent with CVP long-term water service contracts.

Section 5 List of Preparers and Reviewers

Bureau of Reclamation

Joanne Goodsell, Archaeologist, MP 153
Rebecca Victorine, Natural Resource Specialist

San Luis Canal Company

Chase Hurley, General Manager

Central California Irrigation District

Chris White, General Manager

Provost & Pritchard

Rick Iger, PE
Jarrett Martin, PE
Dawn E. Marple, Senior Planner
Jeff O'Neal, Senior Planner, QA/QC
Amy Wilson, Associate Planner
Ellen Simmons, Planning Intern
Jason Thomas, GIS
Angie Hammon, Project Assistant