

# RECLAMATION

*Managing Water in the West*

Environmental Assessment 15-15-MP

## **Firebaugh Canal Water District 1<sup>st</sup> Lift Canal Lining Project Phase 3 – Shaw Avenue to Check 1 at Highway 33**

**Bay-Delta Program: CALFED Water Use Efficiency Grant  
Bureau of Reclamation, Mid-Pacific Region  
Sacramento, California**



**U.S. Department of the Interior  
Bureau of Reclamation**

**December 2015**

## **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.

# List of Acronyms and Abbreviations

|                   |   |
|-------------------|---|
| AFY               | acre-feet per year  |
| APE               | area of potential effect  |
| CAAQS             | California Ambient Air Quality Standards  |
| CWD               | Cawelo Water District   |
| CO                | carbon monoxide   |
| Delta             | Sacramento/San Joaquin River Delta  |
| EA                | Environmental Assessment  |
| FCWD              | Firebaugh Canal Water District  |
| GBP               | Grassland Bypass Project  |
| GDA               | Grassland Drainage Area   |
| GGs               | giant garter snake  |
| GHG               | greenhouse gas  |
| ITA               | Indian Trust Assets   |
| NAAQS             | National Ambient Air Quality Standards  |
| NHPA              | National Historic Preservation Act  |
| NKWSD             | North Kern Water Storage District   |
| NO <sub>2</sub>   | nitrogen dioxide  |
| NO <sub>x</sub>   | nitrous oxides  |
| NRHP              | National Register of Historic Places  |
| O <sub>3</sub>    | ozone   |
| PM <sub>10</sub>  | particulate matter between 2.5 and 10 microns in diameter                                   |
| PM <sub>2.5</sub> | particulate matter less than 2.5 microns in diameter  |
| Project           | 1 <sup>st</sup> Lift Canal Lining Project Phase 3 – Shaw Avenue to<br>Check 1 at Highway 33 |
| Reclamation       | Bureau of Reclamation   |
| ROG               | reactive organic gases  |
| Service           | U.S. Fish and Wildlife Service  |
| SHPO              | State Historic Preservation Officer   |
| SIP               | State Implementation Plan   |
| SJKF              | San Joaquin kit fox   |
| SJVAB             | San Joaquin Valley Air Basin  |
| SJVAPCD           | San Joaquin Valley Air Pollution Control District   |
| SO <sub>2</sub>   | sulfur dioxide  |
| VOC               | volatile organic compounds  |

# Section 1 Introduction

This Environmental Assessment (EA) has been prepared by the Bureau of Reclamation (Reclamation) to examine the potential direct, indirect, and cumulative impacts to the affected environment associated with providing federal grant funding to Firebaugh Canal Water District (FCWD) for its 1<sup>st</sup> Lift Canal Lining Project Phase 3 – Shaw Avenue to Check 1 at Highway 33 (Project). The Project is located approximately four miles southeast of the City of Firebaugh, within FCWD's service area boundary in Fresno County, California (see Figures 1 & 2).

FCWD is not a Reclamation District but receives its water supply through the Central Valley Project via the Delta-Mendota Canal from the Sacramento/San-Joaquin River Delta (Delta) by way of an exchange contract. Water use within FCWD boundaries is entirely for agricultural irrigation.

## 1.1 Need for the Proposal

FCWD needs to reduce seepage losses to a perched saline sink as well as improve its water management capabilities in order to reduce production of pollutant-containing subsurface drainage that discharges to the San Joaquin River. The perched saline sink is high in salts, boron, and selenium, all of which are considered constituents of concern by the Central Valley Regional Water Quality Control Board. FCWD lies within the Grassland Drainage Area (GDA), through which subsurface drain water generated within the region is discharged to the San Joaquin River. To manage these discharges, FCWD is a participating agency in the Grassland Bypass Project (GBP) and helped develop an In-Valley Drainage Solution such that no subsurface drain water leaves the GDA boundary. The GBP operates under a waste discharge permit, which regulates the load of selenium that can be discharged by the GBP and aims to eliminate all discharges from the GDA by 2019. In order to accomplish this, the participating districts need to implement practices that reduce drainage production, such as seepage reduction and increasing water conservation.

The Proposed Action is estimated to reduce seepage losses by 200 acre-feet per year (AFY) and indirectly conserve 560 AFY as farmers of 400 acres within the 1<sup>st</sup> Lift service area would be able to install high-efficiency irrigation systems. The reduction of 200 AFY in seepage losses is estimated to reduce the annual discharge of 33 pounds of selenium, 3,300 pounds of boron, and 1,000 tons of salt into the drainage system. The indirect conservation of 560 AFY through high-efficiency irrigation systems is also estimated to reduce discharges of an additional 91 pounds of selenium, 9,100 pounds of boron, and 2,800 tons of salt from the drainage system through reduced deep percolation.

**Figure 1**

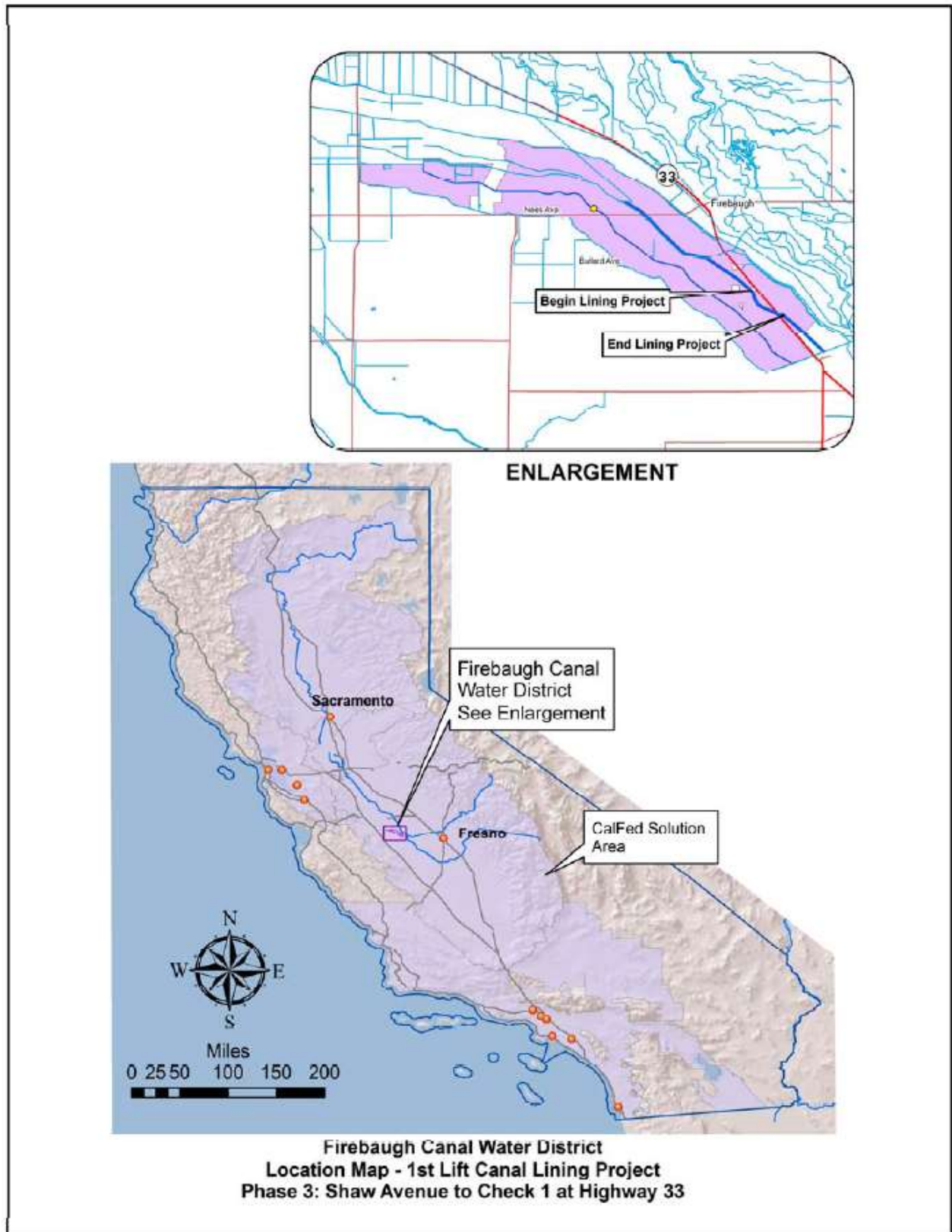
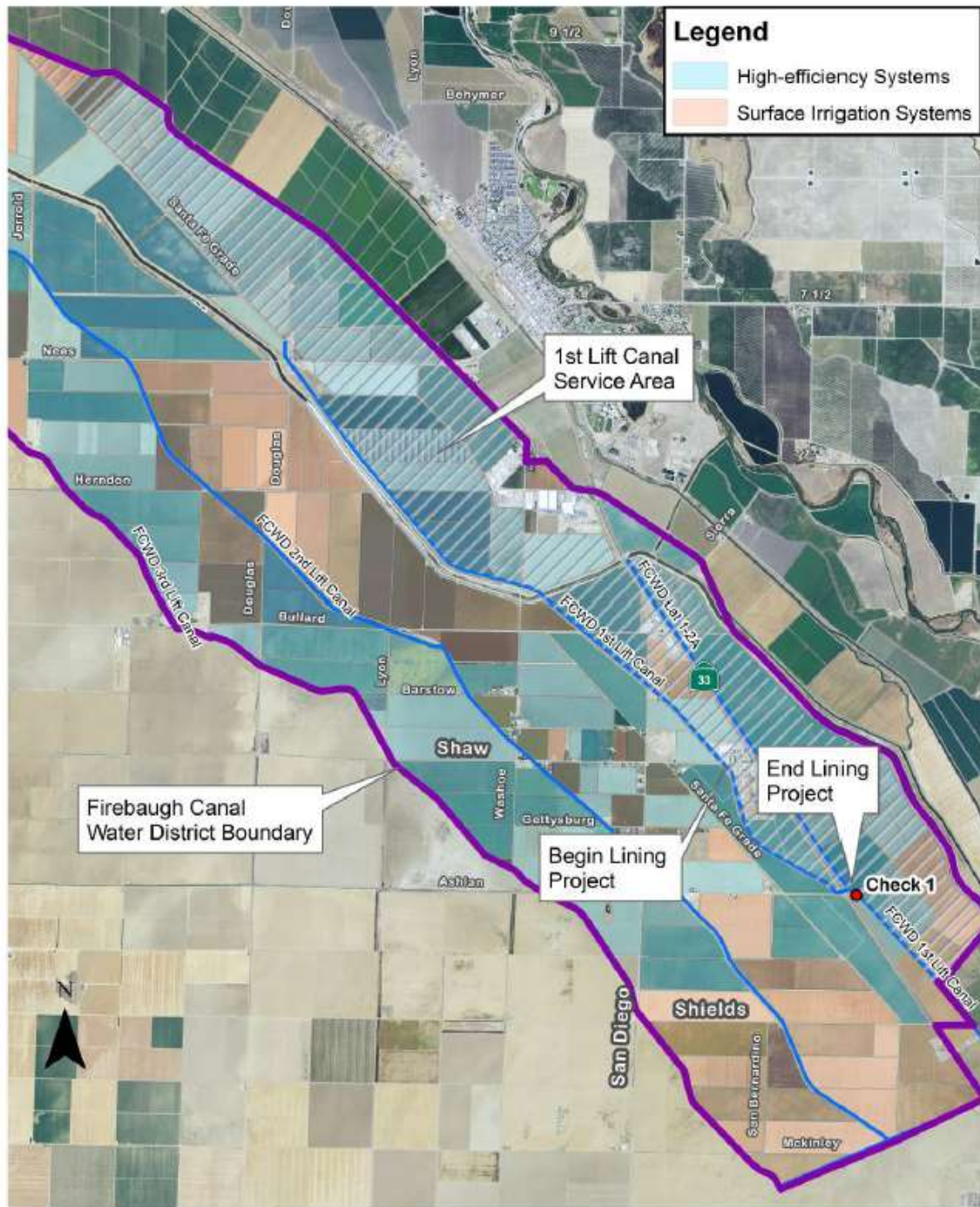


Figure 2



**Firebaugh Canal Water District  
1st Lift Canal Lining Project Phase III  
Service Area & Irrigation Methods**



# Section 2 Proposed Action and Alternatives

## 2.1 No Action Alternative

Under the No Action Alternative, Reclamation would not award a Department of the Interior Bay-Delta Program: CALFED Water Use Efficiency Grant to facilitate water conservation and seepage reduction measures at FCWD. Although it is possible that FCWD may find alternative sources of funding for the Project, for the purposes of this EA, the consequence of Reclamation not providing funding for the Project would be no construction of the Project. The 1<sup>st</sup> Lift irrigation system would continue to provide irrigation service to its users in its current condition as a partially concrete-lined canal. Seepage and deep percolation to the drainage basin and loading of selenium, boron, and salts to the San Joaquin River via the GBP would continue at current levels.

## 2.2 Proposed Action

Reclamation proposes to award a Department of the Interior Bay-Delta Program: CALFED Water Use Efficiency Grant to the FCWD to fund a portion of the Project. The Project would involve lining 1.5 miles of FCWD's earthen 1<sup>st</sup> Lift Canal with concrete from Shaw Avenue to Check 1 immediately east of Highway 33 (see Figure 2). The Project would also involve upgrading irrigation turnout connections with pre-cast concrete gate structures containing slots for future trash screens, and typical irrigation canal gates.

### 2.2.1 Construction Activities

The Project is proposed to be implemented in the winter months of November 2015 through February 2016.

- Earthwork (December): Construction stakes will be placed along the alignment, and turnout structures along the alignment removed. The existing channel will be backfilled with approximately 20,000 cubic yards of material from the canal bank, and compacted to the final design grade according to the drawings. Backfill will be performed by three excavators in lifts and compacted with one sheep's foot roller to ensure proper soil density and moisture levels. Surveyed construction stakes will be placed along the project alignment and final grade will be checked against those stakes.
- Prism Excavation and Placement of Lining (December-January): The channel prism will be excavated with one trencher and one grader to the appropriate lines and grade according to the drawings. The existing canal

cross-section will be reduced to proportions appropriate for its demand flow rate (approximately 30% smaller). Excavated material will be deposited on the canal banks and graded to form the canal road. Concrete lining will be placed with a slip-form sled built to match the design cross-section, dragged by a tractor and fed concrete with two ready-mix trucks. The sled spreads the concrete to a uniform thickness and provides a rough finish to the lining, which a crew of laborers follow with trowels and floats to smoothen the final finish. Prism excavation and lining placement may be done in sections to prevent the excavated prism from drying out or becoming oversaturated due to rain.

- **Turnouts (January-February):** Irrigation turnout connections will be installed according to the drawings, which involves cutting and removing existing lining, excavating the turnout site with an excavator, and installing pre-cast concrete gate structures and typical irrigation canal gates. Once installed, new lining will be poured to transition to the rest of the canal lining.
- **Cleanup (February):** The canal road banks will be graded to the final design, ready for use, and all construction related debris will be removed from the site.

Ground disturbance for installation of the concrete lining and replaced turnouts would be limited to the canal prism. All of the work involved with the Project would be performed in previously disturbed contexts, and regularly-maintained canal infrastructure.

### **2.2.2 Environmental Commitments**

- All Project-related vehicle traffic will be restricted to established roads, construction areas, and other designated Action Area.
- To reduce fugitive dust emissions, workers will implement and observe the following:
  - Reduce vehicle speed to 15 mph on unpaved roads.
  - Where equipment enter on to paved roadways from unpaved work areas, track out will be swept once a day.
  - Stabilize stockpiled materials three times a day if not used immediately.
- If Project activities overlap with the raptor nesting season (March 1 to September 15), a qualified biologist will conduct pre-construction surveys for active raptor nests in the immediate Action Area, 10 days prior to the construction activities. If an active nest is located, FCWD will consult with the Service to identify a suitable construction-free buffer around the nest and for further instruction. The buffer(s) will be identified on the ground with flagging, fencing or by other easily visible means, and will be maintained and monitored by a qualified biologist.



- In the unlikely event that cultural resources or human remains are inadvertently discovered during project implementation, work shall temporarily stop and Reclamation cultural resources staff shall be contacted immediately

## **Section 3 Affected Environment and Environmental Consequences**

### **3.1 Resources Not Analyzed in Detail**

Department of the Interior Regulations, Executive Orders, and Reclamation guidelines require a discussion of Indian sacred sites, Indian Trust Assets (ITA), and Environmental Justice when preparing environmental documentation. Impacts to these resources were considered and found to be minor or absent. Brief explanations for their elimination from further consideration are provided below:

#### **3.1.1 Indian Sacred Sites**

Sacred sites are defined in Executive Order 13007 (May 24, 1996) as "any specific, discrete, narrowly delineated location on Federal land that is identified by an Indian tribe, or Indian individual determined to be an appropriately authoritative representative of an Indian religion, as sacred by virtue of its established religious significance to, or ceremonial use by, an Indian religion; provided that the tribe or appropriately authoritative representative of an Indian religion has informed the agency of the existence of such a site." The Proposed Action is not on federal lands, and will not affect or prohibit access to and ceremonial use of Indian sacred sites.

#### **3.1.2 Indian Trust Assets**

ITAs are legal interests in assets that are held in trust by the United States for federally recognized Indian tribes or individuals. The Proposed Action does not have the potential to affect ITA (see Appendix A).

#### **3.1.3 Environmental Justice**

Executive Order 12898 requires each Federal agency to identify and address disproportionately high and adverse human health or environmental effects, including social and economic effects of its program, policies, and activities on minority populations and low-income populations. No significant changes in agricultural communities or practices would result from the Proposed Action, other than potential changes to individual irrigation systems. These changes are not likely to have effects to any individuals or populations within the action area. Accordingly, the Proposed Action would not have disproportionately negative impacts on low-income or minority populations within the Project area.

## 3.2 Water Resources

The 1<sup>st</sup> Lift Canal is a primary lift canal that delivers 10,000 AFY of irrigation water throughout FCWD. Full water allocation to FCWD is 85,000 AFY in a non-critical water year and 58,000 AFY in a critical (drought) year.

FCWD lies within the Grassland Drainage Area of the CALFED Solution Area, most of which is underlain with a perched saline water table. This shallow water table is managed through on-farm subsurface tile drainage systems and regional deep drains that intercept seepage from irrigation and unlined canal systems. The tile systems within the District contribute an average 4,000 AFY of saline subsurface drain water to the GBP. According to a seepage study performed in 2012 on the FCWD's 1<sup>st</sup> Lift Canal, the unlined portion of this canal loses approximately 200 AFY through seepage to the perched saline sink. This water is unusable for irrigation and contributes to the discharge of saline subsurface drain water to the San Joaquin River system and eventually to the Delta.

The lining of 1.5 miles of earthen canal with concrete would reduce canal seepage by 200 AFY and deny anchorage to aquatic vegetation. The upgraded turnout structures along that reach of canal would have slots for the separate action of adding trash screens, which are necessary for future high-efficiency irrigation systems. Approximately 70 percent of FCWD's crops are grown with high efficiency irrigation systems including surface drip, subsurface drip, and micro sprinklers. The remaining farmed acreage is irrigated with conventional methods such as furrow and hand-move sprinklers. FCWD has farmers of 400 acres of agricultural fields within the 1<sup>st</sup> Lift service area committed to the conversion to high-efficiency irrigation systems once all structural improvements are in place, and the Project would make the conversion more feasible. The Project would result in the water benefits indicated in Table 1.

Table 1. Proposed Water Benefits from the Project

| <b>Benefit</b>  | <b>Calculated Amount</b>  | <b>Percent Conserved/Reduced</b>                |
|---|---|---|
| Reduce Seepage  | 200 AFY   | 2% of 1 <sup>st</sup> Lift Canal Distribution   |
| Water Supply Indirectly Conserved through Conversion to H-Efficiency Irrigation Systems | 560 AFY   | 5.6% of 1 <sup>st</sup> Lift Canal Distribution |
| Improve Water Quality in Drainage System (Selenium)                                     | From seepage reduction: 33 lbs<br>From water conservation: 91 lbs         | 19% Load Reduction*                             |
| Improve Water Quality in Drainage System (Boron)  | From seepage reduction: 3,300 lbs<br>From water conservation: 9,100 lbs   | 7% Load Reduction*                              |
| Improve Water Quality in Drainage System (Salt)   | From seepage reduction: 1,000 tons<br>From water conservation: 2,800 tons | 4% Load Reduction*                              |

\* Assumes full build-out of both the Project and irrigation system improvements. Percent reduction is based on the 2013 discharge from the GBP.

The Proposed Action would have direct benefits on water supply by conserving 200 AFY of irrigation supplies currently lost to seepage. 560 AFY would be conserved indirectly since the improved 1<sup>st</sup> Lift Canal structures would lead to the future conversion to high-efficiency irrigation systems for FCWD's growers. Water conserved through the Project results in a reduction in the amount of selenium, boron, and salt discharged into the San Joaquin River and Delta.

### 3.3 Air Quality

Section 176(c) of the Clean Air Act (42 U.S.C. 7506(c)) requires that any entity of the federal government that engages in, supports, or in any way provided financial support for, licenses or permits, or approves any activity to demonstrate that the action conforms to the applicable State Implementation Plan (SIP) required under Section 110(a) of the Clean Air Act (42 U.S.C. 7401(a)) before the action is otherwise approved. In this context, conformity means that such federal actions must be consistent with a SIP's purpose of eliminating or reducing the severity and number of violations of the National Ambient Air Quality Standards (NAAQS) for criteria air pollutants and achieving expeditious attainment of those standards. Each federal agency must determine that any action that is proposed by the agency and that is subject to the regulations implementing the conformity requirements will, in fact, conform to the applicable SIP before the action is taken.

The Proposed Action 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 and meteorology. Although mixing between adjacent air basins inevitably occurs, air quality conditions are relatively uniform within a given air basin. The SJVAB 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.

The SJVAB lies within the management area of the San Joaquin Valley Air Pollution Control District (SJVAPCD) responsible for developing a local plan with control measures to meet or maintain the NAAQS/CAAQS. Despite years of improvements, the SJVAB does not meet all State and Federal health-based air quality standards. NAAQS and California Ambient Air Quality Standards (CAAQS) have been established for the following criteria pollutants, below which the air is considered healthy to breathe: carbon monoxide (CO), ozone (O<sub>3</sub>), sulfur dioxide (SO<sub>2</sub>), nitrogen dioxide (NO<sub>2</sub>), inhalable particulate matter between 2.5 and 10 microns in diameter (PM<sub>10</sub>), particulate matter less than 2.5 microns in diameter (PM<sub>2.5</sub>), and lead. The CAAQS also set standards for sulfates, hydrogen sulfide and visibility.

The SJVAB has reached NAAQS and CAAQS attainment status for all criteria pollutants except for O<sub>3</sub>, PM<sub>10</sub> (CAAQS only), and PM<sub>2.5</sub>. As a result, the emissions of most concern are O<sub>3</sub> (which includes precursors such as volatile organic compounds [VOC] and nitrogen oxides ([NO<sub>x</sub>])), PM<sub>10</sub> and PM<sub>2.5</sub>. Table 2 below shows the attainment status and *de minimis* threshold for general conformity for the criteria pollutants of most concern. The *de minimis* threshold is the minimum threshold for which a conformity determination must be performed, for various criteria pollutants in various areas. All Federal actions that occur in designated nonattainment or maintenance areas are subject to the General Conformity Regulations except for those that are covered by the transportation conformity rule, associated with emissions below *de minimis* levels, and are either exempt or presumed to conform.

Table 2. SJVAB Attainment Status and *De Minimis* Thresholds for Federal Conformity Determinations

| Pollutant  | Attainment Status <sup>a</sup> | (tons/year)      |
|--|--------------------------------|------------------|
| VOC (as ozone precursor)   | Nonattainment – Extreme        | 10 <sup>b</sup>  |
| NO <sub>x</sub> (as an ozone precursor)  | Nonattainment – Extreme        | 10 <sup>b</sup>  |
| PM <sub>10</sub>   | Nonattainment (CAAQS only)     | 15 <sup>c</sup>  |
| PM <sub>2.5</sub>  | Nonattainment                  | 100 <sup>b</sup> |
| <sup>a</sup> Source: <a href="http://www.arb.ca.gov/design/adm/adm.htm">http://www.arb.ca.gov/design/adm/adm.htm</a><br><sup>b</sup> 40 CFR 93.153 <sup>c</sup> SJVAPCD Threshold: <a href="http://www.valleyair.org/transportation/ceqaanalysislevels.htm">http://www.valleyair.org/transportation/ceqaanalysislevels.htm</a> |                                |                  |

Construction emissions would vary from day to day and by activity, depending on the timing and intensity of construction, and wind speed and direction. Generally, air quality impacts from the Proposed Action would be localized in nature and decrease with distance. Ground disturbing activities would result in the temporary emissions of fugitive dust and vehicle combustion pollutants during earthwork activities and construction equipment and haul truck engine emissions. Standard best management practices, such as stabilizing unpaved roads and stockpiles, pavement track out sweeping, limiting vehicle speeds on unpaved roads, and vehicle maintenance will be employed to minimize these impacts. All construction work will occur in the existing canal prism between canal roads.

A project similar in nature, but slightly greater in magnitude, was implemented by FCWD in January 2015 that involved concrete-lining 2.6 miles of its 2<sup>nd</sup> Lift Canal, updating turnout connections and a pump station meter structure. Calculated emissions from that project were estimated using the 2013 CalEEMOD software (version 2013.2.1), which incorporates emission factors for reactive organic gases (ROG), NO<sub>x</sub>, CO, SO<sub>2</sub>, and both fugitive and exhaust PM<sub>10</sub>, and PM<sub>2.5</sub>. That previous project contained more ground disturbing activities,

therefore calculated which of greater magnitude with higher emission sources were estimated using the 2013 California Emissions Estimator Model (version 2013.2.1) for reactive organic gases (ROG)<sup>1</sup>, NO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> in September of 2014 (Aviles 2014: 12). Total emissions from the earlier project are presented in Table 3.

Table 3. Estimated Emissions for the FCWD 2<sup>nd</sup> Lift Canal Modernization & Lining Project Phase 4 – Washoe to Douglas Avenue<sup>a</sup>

| Pollutant                  | Construction (tons/year)  |
|----------------------------|---------------------------|
| ROG/VOC                    | 0.14                      |
| NO <sub>x</sub>            | 1.35                      |
| PM <sub>10</sub>           | 0.41                      |
| PM <sub>2.5</sub>          | 0.13                      |
| Carbon dioxide equivalents | 106.40 (metric tons/year) |

<sup>a</sup> Source: CalEEMOD version 2013.2.1

As shown in Table 3, the estimated emissions for the previous 2<sup>nd</sup> Lift Canal Lining project implemented in 2015 are below the *de minimis* thresholds for NO<sub>x</sub>, ROG/VOC as O<sub>3</sub> precursors, PM<sub>2.5</sub>, and PM<sub>10</sub>; therefore, a Federal general conformity analysis report was not required. Considering that the Project is similar in nature, but much smaller in magnitude to the previous 2<sup>nd</sup> Lift Canal project, emissions associated with the Proposed Action are expected to be lower than those listed in Table 2 and would not require a Federal general conformity analysis. Notwithstanding this observation, the Proposed Action would comply with the SJVAPCD's Regulation VIII (SJVAPCD 2012) control measures for construction emissions of PM<sub>10</sub>. One of these control measures includes the use of water with all "land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities" for fugitive dust suppression. However, if dust suppression measures are not implemented, the estimated emissions from the 2<sup>nd</sup> Lift Canal project for PM<sub>2.5</sub> (0.21 tons/year) and PM<sub>10</sub> (0.69 tons/year), thus for the Proposed Action, would still be well below the *de minimis* thresholds.

### 3.4 Biological Resources

The Action Area is the footprint of the Project, which includes staging and haul routes, and a 200-foot buffer around those activities in which noise and dust could occur. The present land use around the Action Area consists of active agricultural fields and orchards, farm roads and shoulders, and existing ditches and canal

<sup>1</sup> The term "volatile organic compounds" are synonymous with "reactive organic gases" for the purposes of this document since both terms refer to hydrocarbon compounds that contribute to ozone formation.

infrastructure that are cultivated, maintained, excavated, and sprayed on an annual basis. The majority of the crops grown within the FCWD consist of cotton, alfalfa, tomatoes, wheat, barley, melons, pomegranates, pistachios, asparagus and onions. There is no designated critical habitat in the Action Area.

The California Natural Diversity Database (CNDDB), environmental documents from previous projects, and other sources available to Reclamation were used to determine if the Proposed Action would have potential effects on federally-listed species. On July 28, 2015, an official list of species protected by the Endangered Species Act of 1973 (as amended), including species listed as threatened, endangered, proposed and candidate species potentially occurring within the Action Area was generated from the U.S. Fish & Wildlife Service's (Service) Information for Planning and Conservation website (Service 2015). A CNDDB query was run for listed species records that may exist in the Action Area or within dispersal distance up to a 10-mile radius.

Table 4 includes federally-protected species potentially occurring within the Firebaugh and its surrounding Mendota Dam, Tranquillity, Coit Ranch, Chaney Ranch, Broadview Farms, Oxalis, Poso Farm, and Firebaugh NE USGS 7.5-minute Quadrangles. Included is a brief description of each species' status, a determination of effects from the Proposed Action, and a summary of the rationale supporting the determination.

Table 4: Federally-Listed Species Identified as Potentially Occurring in the Firebaugh and Immediate Surrounding USGS 7.5-minute Quadrangles

| Scientific Name                          | Common Name                                     | Federal Status | Effects | Potential habitat utilized by species in Action Area   |
|--|---|----------------|---------|--|
| <b>INVERTEBRATES</b>                     |   |                |         |  |
| <i>Branchinecta lynchi</i>               | vernal pool fairy shrimp                        | T              | NE      | <b>Absent.</b> There is no vernal pool habitat in the Action Area.   |
| <i>Branchinecta longiantenna</i>         | longhorn fairy shrimp                           | E              | NE      | <b>Absent.</b> There is no vernal pool habitat in the Action Area.   |
| <i>Desmocerus californicus dimorphus</i> | valley elderberry longhorn beetle               | T              | NE      | <b>Absent.</b> No suitable habitat (elderberry shrubs) in the Action Area.   |
| <b>AMPHIBIANS</b>                        |   |                |         |  |
| <i>Ambystoma californiense</i>           | California tiger salamander, central population | T              | NE      | <b>Absent.</b> No vernal pool habitat or other suitable wetland habitat in the Action Area.  |
| <i>Rana draytonii</i>                    | California red-legged frog                      | T              | NE      | <b>Absent.</b> Species absent from San Joaquin Valley floor and from vicinity of the Action Area. No suitable habitat in the Action Area.    |
| <b>REPTILES</b>                          |   |                |         |  |
| <i>Gambelia sila</i>                     | blunt-nosed leopard lizard                      | E              | NE      | <b>Absent.</b> There are 16 CNDDB occurrence records within 10 miles of the Action Area. However, there are neither occurrences nor suitable |

| Scientific Name                      | Common Name   | Federal Status | Effects | Potential habitat utilized by species in Action Area   |
|--------------------------------------|---|----------------|---------|--|
|                                      |   |                |         | habitat in the Action Area.  |
| <i>Thamnophis gigas</i>              | giant garter snake (GGS)                                  | T              | NE      | <b>Absent.</b> There are four records of GGS within 10 miles of the Action Area, with the closest occurrence record 3.3 miles southeast of the Action Area near Mendota Pool. This is within dispersal distance of GGS, but there is no connectivity between suitable aquatic habitat and the Action Area, and no suitable vegetation or denning habitat in the Action Area. See analysis below. |
| <b>MAMMALS</b>                       |   |                |         |  |
| <i>Dipodomys ingens</i>              | giant kangaroo rat  | E              | NE      | <b>Absent.</b> No suitable habitat in the Action Area.   |
| <i>Dipodomys nitratoides exillis</i> | Fresno kangaroo rat                                       | E              | NE      | <b>Absent.</b> There are two CNDDDB occurrence records for this subspecies within 10 miles. These records are labeled as “possibly extirpated” and were last recorded in 1992. No suitable habitat in the Action Area.   |
| <i>Vulpes macrotis mutica</i>        | San Joaquin kit fox (SJKF)                                | E              | NE      | <b>Absent.</b> Eight CNDDDB occurrence records within 10 miles of the Action Area. However, there is a lack of suitable foraging and denning habitat in the Action Area and surrounding fields, and no SJKF have been observed during surveys near the Lift Canal System in the past three years. See explanation below.   |
| <b>BIRDS</b>                         |   |                |         |  |
| <i>Coccyzus americanus</i>           | western yellow-billed cuckoo                              | T              | NE      | <b>Absent.</b> There is no suitable habitat in the Action Area.  |
| <b>FISH</b>                          |   |                |         |  |
| <i>Hypomesus transpacificus</i>      | delta smelt   | T              | NE      | <b>Absent.</b> This species is not present within the FCWD irrigation delivery system.   |
| <i>Oncorhynchus mykiss</i>           | Northern California Distinct Population Segment steelhead | T              | NE      | <b>Absent.</b> This species is not present within the FCWD irrigation delivery system.   |
| <b>PLANTS</b>                        |   |                |         |  |
| <i>Monolopia congdonii</i>           | San Joaquin woollythreads                                 | E              | NE      | <b>Absent.</b> There is one CNDDDB occurrence record nine miles south of the Action Area. The record indicates it is possibly extirpated. There are no occurrences within the Action Area.   |



| Scientific Name             | Common Name                       | Federal Status | Effects | Potential habitat utilized by species in Action Area   |
|-----------------------------|-----------------------------------|----------------|---------|--|
| <i>Chloropyron palmatum</i> | palmete-bracted salty bird's-beak | E              | NE      | <b>Absent.</b> There are seven CNDDDB occurrence records within 10 miles of the Action Area. No occurrences have been observed in the Action Area. |

Key:

(E) Endangered– Listed in the Federal Register as being in danger of extinction

(T) Threatened – Listed as likely to become endangered within the foreseeable future

(NE) No Effect – Project will have no effect on the species

(NLAA) Not Likely to Adversely Affect – Project may affect the species, but is not likely to adversely affect.

By reducing the seepage contribution to the local perched water table, the Proposed Action would reduce the production of subsurface drain water which is currently discharged to the San Joaquin River and flows to the Delta. Reducing the production of subsurface drain water also reduces the discharge of selenium, boron, and salt into these waterways, improving water quality for many species. In addition, the FCWD has completed multiple canal lining projects within its service area. These previous projects were successful and no observations of listed species were made in the vicinity of the Action Area.

### 3.4.1 Birds Protected Under the Migratory Bird Treaty Act

Based on habitat requirements of the bird species protected under the Migratory Bird Treaty Act that could potentially occur within the Action Area, suitable habitat is absent for bank swallow (*Riparia riparia*), tricolored blackbird (*Agelaius tricolor*), and white-faced ibis (*Plegadis chihi*). Potential suitable habitat does exist in the Action Area for Swainson's hawk (*Buteo swainsoni*) and burrowing owl (*Athene cunicularia*).

There are three occurrence records of burrowing owl seven to 10 miles southeast of the Action Area. Two of these occurrences are active burrows in the disturbed context of canal embankments. The Action Area is surrounded by actively irrigated and harvested cropland and a dairy farm. However, the existing portion of earthen canal is maintained annually, removing weed growth and filling in squirrel burrows. There is no suitable burrowing habitat for burrowing owl in the Action Area and no signs of burrowing owl have been observed in reconnaissance surveys performed on July 31 and October 2, 2015.

There are numerous CNDDDB occurrence records of Swainson's hawk within 10 miles of the Action Area. Although there are no large trees suitable for Swainson's hawk nesting within half a mile of the Action Area, there is suitable foraging habitat in surrounding agricultural fields. The construction period is November through February, which is outside of the raptor nesting season of March 1 to September 15. All Project activities will be limited to the canal prism and canal roads. Project-related noise from ground-disturbance and equipment engines could temporarily interrupt foraging Swainson's hawks and cause them to

fly away. However, there are thousands of acres of suitable foraging habitat surrounding the Action Area that raptors can forage in.

If construction activities overlap with the active nesting season and cannot be avoided, environmental commitments listed in Section 2.2.1 such as performing a preconstruction survey for active raptor nests will be implemented to avoid and minimize potential take of migratory birds.

### **3.4.2 Giant Garter Snake**

GGs inhabit agricultural wetlands and other waterways such as irrigation and drainage canals, sloughs, ponds, small lakes, low gradient streams, and adjacent uplands in the Central Valley (Service 1999). Habitat requirements for GGs consist of (1) adequate water during the snake's active season (early-spring through mid-fall) to provide food and cover; (2) emergent, herbaceous wetland vegetation, such as cattails and bulrushes, for escape cover and foraging habitat during the active season; (3) grassy banks and openings in waterside vegetation for basking; and (4) rodent burrows or rip rap in higher elevation uplands for cover and refuge from flood waters during the snake's dormant season in the winter (Service 2009).

There are four records of GGs within 10 miles of the Action Area, with the closest occurrence record 3.3 miles southeast of the Action Area near Mendota Pool. However, considering the following factors, GGs are not expected to be present in the Action Area:

- The Action Area is at least 2.5 miles west of the nearest habitat with confirmed GGs presence and the surrounding landscape of row crops and other land uses is incapable of supporting GGs, which has changed dramatically in recent decades with a 60 percent reduction in rice acreage since 1988;
- A GGs survey was performed along the 2<sup>nd</sup> Lift Canal in 2012 and along the 1<sup>st</sup> Lift Canal on July 12, 2013 by a Service-approved biologist. The biologist determined that the canals and vast majority of the potential habitat within 200 feet of the canals were unsuitable for or incapable of supporting GGs (Hansen 2013; 2014);
- Features within the 1<sup>st</sup> Lift Canal are largely isolated and generally lack the emergent aquatic and terrestrial vegetation that GGs rely upon for cover (Hansen 2014);
- The 1<sup>st</sup> Lift Canal is regularly maintained to keep ground squirrel burrows filled, thus eliminating potential upland denning habitat in the canal prism.
- Construction will occur during the snake's inactive period (October 2–April 30) when GGs are dormant; and
- In the past three years that Reclamation provided grant funding to FCWD to concrete-line portions of its Lift Canal System, there were no observations of GGs individuals or signs of presence within the associated action areas during preconstruction surveys and construction periods.

Reclamation has determined that the Proposed Action would have no effect on GGS.

### **3.4.3 San Joaquin Kit Fox**

SJKF historically ranged in alkali scrub/shrub and arid grasslands throughout the level terrain of the San Joaquin Valley floor from southern Kern County north to Tracy in San Joaquin County, and up into more gradual slopes of the surrounding foothills and adjoining valleys of the interior Coast Range. Within this range, SJKF are associated with areas having open, level, sandy ground that is relatively stone-free to depths of about 3 – 4.5 feet. The SJKF utilizes subsurface dens, which may extend to six feet or more below ground surface, for shelter and for reproduction. SJKF are absent or scarce in areas where soils are shallow due to high water tables, impenetrable hardpans, or proximity to parent material, such as bedrock. SJKF also do not den in saturated soils or in areas subjected to periodic flooding.

According to CNDDDB, there have been several historical sightings of SJKF (between 1920 and the 1990s) within 10 miles, and as close as 4 miles, of the Action Area. However, the Action Area contains neither high quality foraging habitat nor suitable SJKF denning habitat. Reclamation determined that the project would have no effect on SJKF, considering the following:

- The landscape of FCWD, including the Action Area, is, and has been for decades, highly disturbed from high intensity agricultural activities, rodenticide use, and maintenance, which does not support suitable habitat for potential prey or SJKF dens. Due to these activities and lack of suitable denning soil, it is highly unlikely for denning habitat to be present within 200 feet of the Action Area.
- The closest known SJKF occurrence is 4 miles east of the Action Area. It is unlikely that SJKF would disperse across irrigation canals, through actively cultivated fields and through the Action Area where there is a lack of foraging habitat.
- In the past three years that Reclamation provided grant funding to FCWD to concrete-line portions of its Lift Canal System, there were no observations of SJKF individuals, signs of presence, or potential dens within the associated action areas during preconstruction surveys and construction periods.

In the unlikely event that active dens or individual SJKF are observed near the Action Area during construction, work would be halted and Reclamation will consult with the U.S. Fish & Wildlife Service.

### **3.4.4 Cultural Resources**

The Proposed Action would allow the expenditure of Federal funds by FCWD to concrete-line a portion of its 1<sup>st</sup> Lift Canal and replace a series of turnout structures. There would be no new construction and there are no proposed activities resulting in new ground disturbance. Activities associated with the

implementation of the Project involve dredging silt, and removing debris, rip-rap and turnout structures from the portion of the 1<sup>st</sup> Lift Canal. Once these materials are removed, the canal prism will be shaped and prepared for soil stabilization, concrete lining placement, and installation of new turnout structures.

The area of potential effects (APE) for the Project is defined as the segment of canal encompassing the prism and berms of the canal for 1.5 miles between Shaw Avenue and Highway 33, with a 130 foot corridor that encompasses the legal right of way for the 1<sup>st</sup> Lift Canal, a cumulative area of approximately 24 acres. The vertical APE is confined to the designed canal prism. All staging and construction activities will be conducted within the canal and canal roads. Reclamation coordinated with Applied EarthWorks, Inc., FCWD's cultural resources contractor, to conduct a cultural resources inventory and evaluation for the Project. The FCWD Lift System, which consists of the Main Canal, 1<sup>st</sup> Lift Canal, 2<sup>nd</sup> Lift Canal, and 3<sup>rd</sup> Lift Canal; and a segment of the San Pablo Tulare Extension Railroad were the only identified cultural resources within the APE. Applied EarthWorks, Inc. evaluated the entire FCWD Lift System, including the segment of the 1<sup>st</sup> Lift Canal within the APE, and recommended that due to a lack of significance it was not eligible for inclusion in the National Register. The San Pablo Tulare Extension Railroad was evaluated and found to be a historically significant resource likely eligible for inclusion in the National Register under Criterion A, at the local level. However, after applying the seven aspects of integrity, Applied EarthWorks, Inc. determined that it did not retain sufficient integrity to convey its significance, and was therefore ineligible for inclusion in the National Register. Reclamation has reviewed and accepted Applied EarthWorks Inc.'s recommendations of ineligibility for both the 1<sup>st</sup> Lift Canal and San Pablo Tulare Extension Railroad. Reclamation determined that a finding of no historic properties affected pursuant to 36 CFR §800.4(d)(1), and the ineligibility of the FCWD Lift System and segment of the San Pablo Tulare Extension Railroad with the APE is appropriate for the proposed undertaking. On October 28, 2015, Reclamation entered into consultation with the California State Historic Preservation Officer (SHPO) on its findings.

In the unlikely event that cultural resources or human remains are identified during the implementation of this project there may be additional considerations pursuant to Section 106 of the NHPA. If inadvertent discoveries of cultural resources or human remains occur during project implementation, work shall temporarily stop and Reclamation cultural resources staff shall be contacted immediately.

### **3.4.5 Cumulative Impacts**

According to the CEQ regulations for implementing the procedural provisions of NEPA, a cumulative impact is defined as *the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions* (40 CFR 1508.27(b)(7)). Cumulative impacts can result from individually minor but collectively significant actions taking place over a particular period of time.

### 3.4.5.1 Cumulative Impacts to Air Quality

The Proposed Action has the potential to impact air quality through emissions of the criteria pollutants of most concern from ground disturbance and construction equipment. As described earlier, FCWD lies within the SJVAB, which currently does not meet all CAAQS and NAAQS. As a federally-funded Project, the Proposed Action must conform with the SIP's purpose, part of which is to maintain emissions below the *de minimus* threshold for federal general conformity of the four remaining criteria pollutants that the SJVAB is in nonattainment with (refer to Table 2). Because the SJVAB encompasses seven counties in addition to Fresno County, emissions from projects occurring in those counties within the SJVAB within the same general time period as the Proposed Action could lead to a cumulative impact.

The Cawelo Water District (CWD) and North Kern Water Storage District (NKWSD) Calloway Canal Lining Project – Reaches C1, C2, and D will be implemented in the SJVAB simultaneously with the Proposed Action. This project is located in the portion of Kern County designated as part of the SJVAB. Reclamation awarded CWD with a CALFED Water Use Efficiency Grant to assist in funding the lining of Reach C1 of the Calloway Canal and a similar CALFED grant to assist in funding the lining of Reach C2. Reclamation also awarded NKWSD with an Agricultural Water Conservation and Efficiency grant to assist in funding the lining of Reach D. Construction is currently underway, expected to complete by December 2015. Emissions from this project were calculated with the 2013.2.2 version of CalEEMod software and are presented in Table 4 below.

Table 4. Estimated Cumulative Mitigated Project Emissions

| Criteria Air Pollutant     | FCWD tons/year <sup>a</sup> | CWD and NKWSD Canal Lining Project <sup>b</sup> | Total tons/year         |
|----------------------------|-----------------------------|---|-------------------------|
| ROG/VOC                    | <0.14                       | 0.13  | 0.27                    |
| NO <sub>x</sub>            | <1.35                       | 1.35  | 2.70                    |
| PM <sub>10</sub>           | <0.41                       | 0.98  | 1.39                    |
| PM <sub>2.5</sub>          | <0.13                       | 0.20  | 0.33                    |
| Carbon dioxide equivalents | <106.40 metric tons/year    | 101.09 metric tons/year                         | 207.49 metric tons/year |

<sup>a</sup> Source: CalEEMod Version 2013.2.1

<sup>b</sup> Source: Kleinsmith 2015: 20

As shown in Table 4, the CWD and NKWSD projects have been estimated to emit less than the *de minimus* thresholds for NO<sub>x</sub> and ROG/VOC as O<sub>3</sub> precursors, PM<sub>2.5</sub>, and PM<sub>10</sub>. In combination with FCWD's Project emissions, the total for these criteria pollutants are still below the *de minimus* thresholds.

#### **3.4.5.2 Cumulative Impacts to Greenhouse Gases**

Greenhouse gas (GHG) impacts are considered to be cumulative impacts since any increase in greenhouse gas emissions would add to the existing inventory of gases that could contribute to climate change. The Project would also lead to fewer vehicle trips to and from the Check structure once it is upgraded, reducing CO<sub>2</sub> emissions by approximately 2.9 metric tons/year. Considering the reduced CO<sub>2</sub> emissions, the estimated GHG emission due to temporary Project construction activities is less than 97.50 metric tons of carbon dioxide equivalents/year. There are no on-going operational emissions from the Project. Since the amount of CO<sub>2</sub> emitted from the Project is well under the 25,000 metric ton/year threshold, the contribution of greenhouse gases is negligible.

## **Section 4 Consultation and Coordination**

### **4.1 Agencies and Groups Consulted**

Reclamation coordinated with the Service's Sacramento Fish and Wildlife Office, California State Historic Preservation Officer, and the FCWD in preparation of the EA.

### **4.2 Endangered Species Act (16 USC § 1531 et seq.)**

Section 7 of the 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 has determined that the Proposed Action would have no effect on species listed or designated critical habitat under the Endangered Species Act of 1973, as amended, and consultation under the ESA is not required.

### **4.3 National Historic Preservation Act (54 USC § 306108)**

Reclamation is consulting under Title 54 USC § 306108, commonly known as Section 106 of the NHPA, which requires that federal agencies give the Advisory Council on Historic Preservation an opportunity to comment on the effects of an undertaking on historic properties, properties that are eligible for inclusion in the National Register. The 36 CFR Part 800 regulations implement Section 106 of

the NHPA. Section 106 of the NHPA requires federal agencies to consider the effects of federal undertakings on historic properties, properties determined eligible for inclusion in the National Register.

Based on review of the available information, Reclamation initiated consultation with the SHPO and requested concurrence on the ineligibility of the FCWD Lift System and segment of the San Pablo Tulare Extension Railroad on October 28, 2015, and notified them on a project finding of no historic properties affected pursuant to 36 CFR § 800.4(d)(1). In a letter dated November 25, 2015, SHPO responded concurring with the ineligibility determination on the entire FCWD Lift System, including the Main Canal and the First, Second, and Third Lift canals; with the ineligibility determination for the segment of San Pablo and Tulare Extension Railroad; and had no objection to Reclamation's finding. (see Appendix B).

## Section 5 References

- Aviles, A. 2014. *Firebaugh Canal Water District 2<sup>nd</sup> Lift Canal Modernization and Lining Project Phase 4 – Washoe to Douglas Avenue*: U.S. Bureau of Reclamation. Available: [http://www.usbr.gov/mp/nepa/nepa\\_projdetails.cfm?Project\\_ID=18861](http://www.usbr.gov/mp/nepa/nepa_projdetails.cfm?Project_ID=18861). Accessed: July 27, 2015.
- California Emissions Estimator Model (CalEEMod). 2013. Windows Version 2013.2.1. September 26, 2014.
- Hansen, E. 2013. *Memo to Summers Engineering*, Sacramento, CA. 22 Jul 2013.
- Hansen, E. 2014. *Memo to Summers Engineering*, Sacramento, CA. 15 Sep 2014.
- SJVAPCD. 2012. *Rules and Regulations. Regulation VII*: SJVAPCD. Available: <http://www.valleyair.org/aqinfo/attainment.htm>. Accessed: July 27, 2015.
- Service. 1999. Draft Recovery Plan for the Giant Garter Snake (*Thamnophis gigas*). Portland, Oregon. Ix+ 192 pp.
- Service. 2009. *Species Account. Giant Garter Snake*: U.S. Fish and Wildlife Service. May 13, 2009.
- Service. 2015. *Information for Planning and Conservation*. U.S. Fish & Wildlife Service. Web. 28 July 2015.



## Appendix A – ITA Determination

### Indian Trust Assets Request Form (MP Region)

Submit your request to your office's ITA designee or to MP-400, attention Deputy Regional Resources Manager.

**Date: 07/22/2015**

|  |  |
|--|--|
| <b>Requested by</b>  | Alex Aviles, MP-152  |
| <b>Cost Authority<br/>(18 digits + 1)</b>  | Fund: 15XR0680A1<br>WBS Code: RX021489455000000  |
| <b>Cost Center<br/>(7 digits)</b>  | RR02015200   |
| <b>Region # if other than MP</b>   | N/A  |
| <b>Project Name</b>  | Firebaugh Canal Water District 1 <sup>st</sup> Lift Canal Lining Project Phase 3 – Shaw Avenue to Check 1 at Highway 33  |
| <b>CEC or EA Number</b>  | EA # 15-15-MP  |
| <b>Project Description<br/>(attach additional sheets if needed and include photos if appropriate)</b>              | Reclamation proposes to award a CALFED Water Use Efficiency Grant to the Firebaugh Canal Water District to help fund the concrete-lining of approximately 1.5 miles of its 1 <sup>st</sup> Lift Canal and replacement of existing turnout structures on a portion of the canal with pre-cast concrete structures that can accommodate trash screens. |
| <b>*Project Location<br/>(Township, Range, Section, e.g., T12 R5E S10, or Lat/Long coords).<br/>Include map(s)</b> | Lat: 36.79791<br>Long: -120.42397<br><br>See attached maps.  |

#### ITA Determination:

The closest ITA to the proposed canal lining project described above is the Table Mountain Rancheria located approximately 45.13 miles to the northeast.  
(see attached image).

Based on the nature of the planned work it does not appear to be in an area that will impact Indian hunting or fishing resources or water rights nor is the proposed activity on actual Indian lands. It is reasonable to assume that the proposed action will not have any impacts on ITAs.

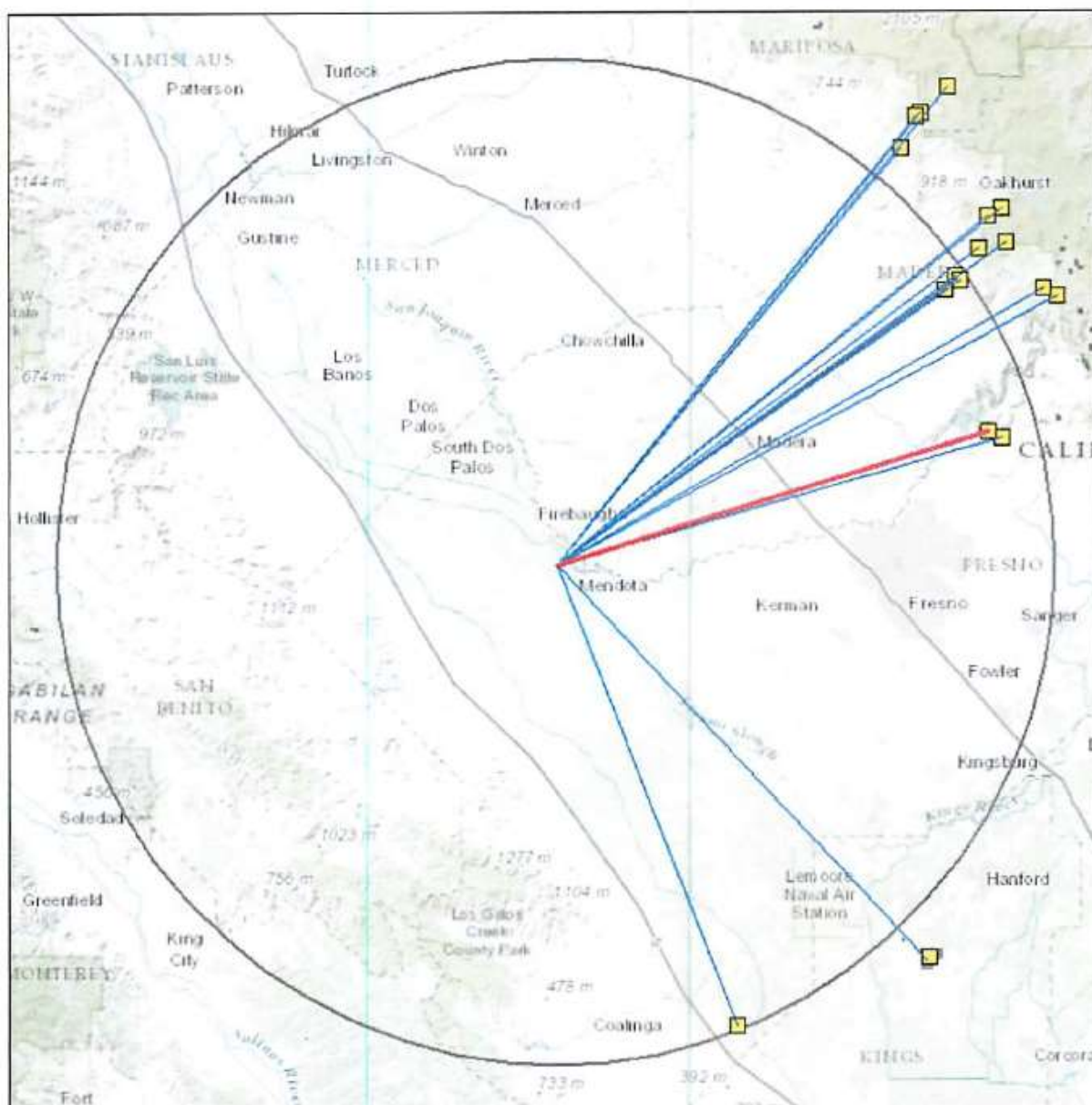
  
Signature

Richard M. Stevenson  
Printed name of approver

7/20/15  
Date

## Appendix B – Cultural Resources Compliance

### Firebaugh CWD FY15 Grant ITA Map



- PDA
- Rancheria
- Region Boundaries

1:1,155,581

Project Location: x: -120.42397, y: 36.79791  
 Distance to closest Native American land: 45.13 miles  
 Name: Table Mountain  
 Tribe: Table Mountain Rancheria

**RECLAMATION**  
 Managing Water in the West

## **Appendix B – Cultural Resources Compliance**

### **CULTURAL RESOURCES COMPLIANCE Division of Environmental Affairs Cultural Resources Branch (MP-153)**

**MP-153 Tracking Number:** 15-SCAO-199

**Project Name:** National Historic Preservation Act Compliance for Firebaugh Canal Water District (FCWD) First Lift Canal Lining Project, Fresno County, California.

**NEPA Contact:** Alex Aviles, Natural Resource Specialist

**MP 153 Cultural Resources Reviewer:** BranDee Bruce, Architectural Historian

**Date:** December 3, 2015

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Reclamation proposes to issue a CALFED grant to FWCD for a canal lining project on their facilities in Fresno County, California. The expenditure of federal funds constitutes an undertaking with the potential to cause effects to historic properties, assuming such properties are present, requiring compliance with Section 106 of the National Historic Preservation Act (NHPA) as amended.

Based on historic properties identification efforts conducted by Reclamation and FWCD's cultural resources contractor Applied Earthworks, Inc. and documented in the cultural resources report titled *Cultural Resources Inventory and Evaluation for the First Lift Canal Relining Project Shaw Avenue to Highway 33, Fresno County, California*, no historic properties within the area of potential effects were identified. Applied Earthworks, Inc. surveyed, recorded, and evaluated a segment of the First Lift Canal, a component of the FCWD Lift System and a segment of the San Pablo and Tulare Railroad. The First Lift Canal was determined ineligible for listing on the National Register of Historic Places (National Register), while the segment of the San Pablo and Tulare Railroad was evaluated as eligible under Criterion A, but because it lacked sufficient integrity to convey its significance, it is a non-contributing segment of the railroad. For this current undertaking, a finding of no historic properties affected pursuant to 36 CFR §800.4(d)(1) was determined.

Reclamation hand delivered a consultation package to State Historic Preservation Officer (SHPO) on October 28, 2015 concerning the proposed undertaking and notification of a finding of no historic properties affected. In a letter dated November 25, 2015, SHPO responded concurring with the ineligibility determination on the entire FCWD Lift System, including the Main Canal and the First, Second, and Third Lift canals; with the ineligibility determination for the segment of San Pablo and Tulare Extension Railroad; and had no objection to Reclamation's finding. With receipt of SHPO concurrence, Reclamation's responsibilities for Section 106 compliance are fulfilled.

Reclamation has concluded the NHPA Section 106 process for this undertaking. After reviewing the EA for the proposed project, Reclamation finds that this action would not have significant impacts on properties listed, or eligible for listing, on the National Register. Consultation correspondence between Reclamation and the SHPO has been provided with this cultural resources compliance document for inclusion in the administrative record for this action. Please note that if project activities subsequently change, additional NHPA Section 106 review, including further consultation with the SHPO, may be required.

Attachments:

Letter: Reclamation to SHPO dated October 28, 2015

Letter: SHPO to Reclamation dated November 25, 2015