

RECLAMATION

Managing Water in the West

Environmental Assessment

Rosedale-Rio Bravo Water Storage District Water Conservation, Energy Efficiency & Solar Power Project

14-33-MP



U.S. Department of the Interior
Bureau of Reclamation
RRBWS-D-Pacific Regional Office
Sacramento, CA

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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

AF	Acre-feet
AFY	Acre-feet per year
CAAQS	California Ambient Air Quality Standards
CESA	California Endangered Species Act
CVP	Central Valley Project
FESA	Federal Endangered Species Act
HP	Horse power
ID	Irrigation district
KCAPCD	Kern County Air Pollution Control District
MBI	McCormick Biological, Inc.
MDAB	Mojave Desert Air Basin
NAAQS	National Ambient Air Quality Standards
NO _x	Nitrogen oxides
O ₃	Ozone
PM ₁₀	Particulate matter less than 10 microns in diameter
PM _{2.5}	Particulate matter less than 2.5 microns in diameter
Project	Water Conservation, Telemetry Upgrade & Improvement Project
Reclamation	Bureau of Reclamation
ROG	Reactive organic gases
RRBWSD	Rosedale-Rio Bravo Water Storage District
SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control District
SWP	State Water Project
USFWS	U.S. Fish and Wildlife Service
VFD	Variable frequency drive unit
VOC	Volatile organic compounds
WSD	Water storage district

Section 1 Introduction

This Environmental Assessment has been prepared to examine the potential direct, indirect, and cumulative impacts to the affected environment associated with providing federal grant funding to the Rosedale-Rio Bravo Water Storage District (RRBWSD) for its Water Conservation, Energy Efficiency & Solar Power Project (Project). The Project is divided among two areas. The West Project Area is in RRBWSD's service area in the Central Valley west of Bakersfield, and the East Project Area is in the South Fork Kern River Valley east of Lake Isabella on Onyx Ranch. The RRBWSD is located 15 miles west of the City of Bakersfield and Onyx Ranch 50 miles to the northeast of the City of Bakersfield, in Kern County, California (Figures 1 and 2).

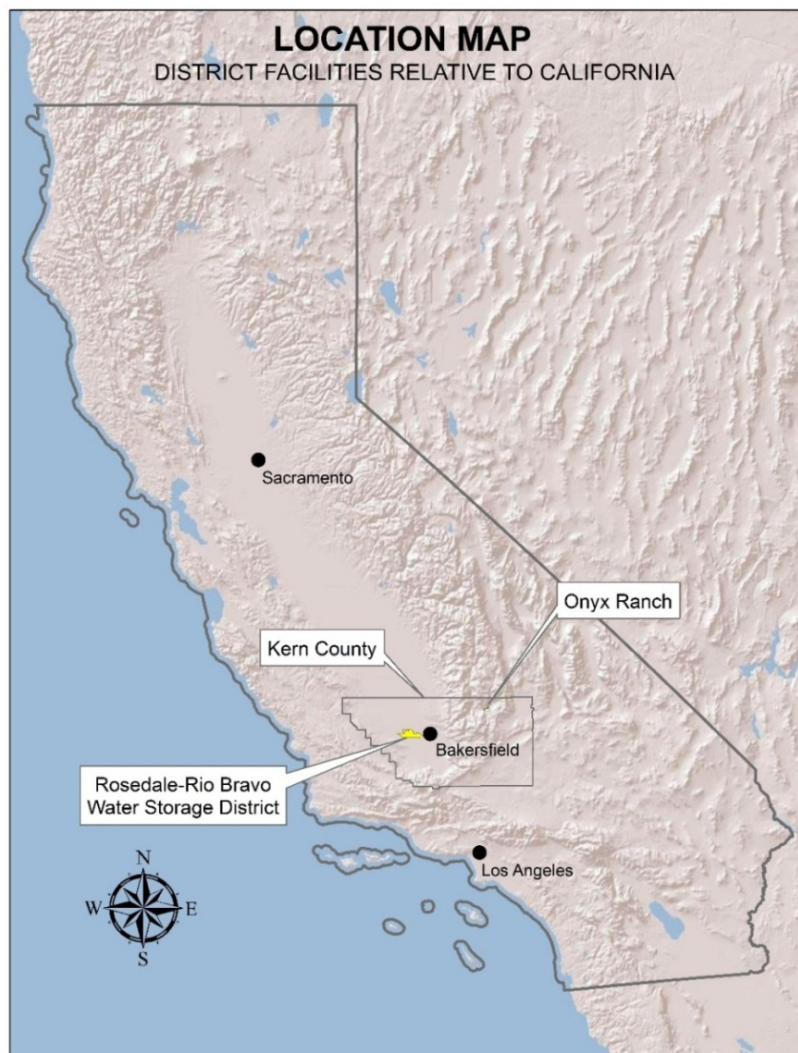


Figure 1. Location of the water district service area and Onyx Ranch in California

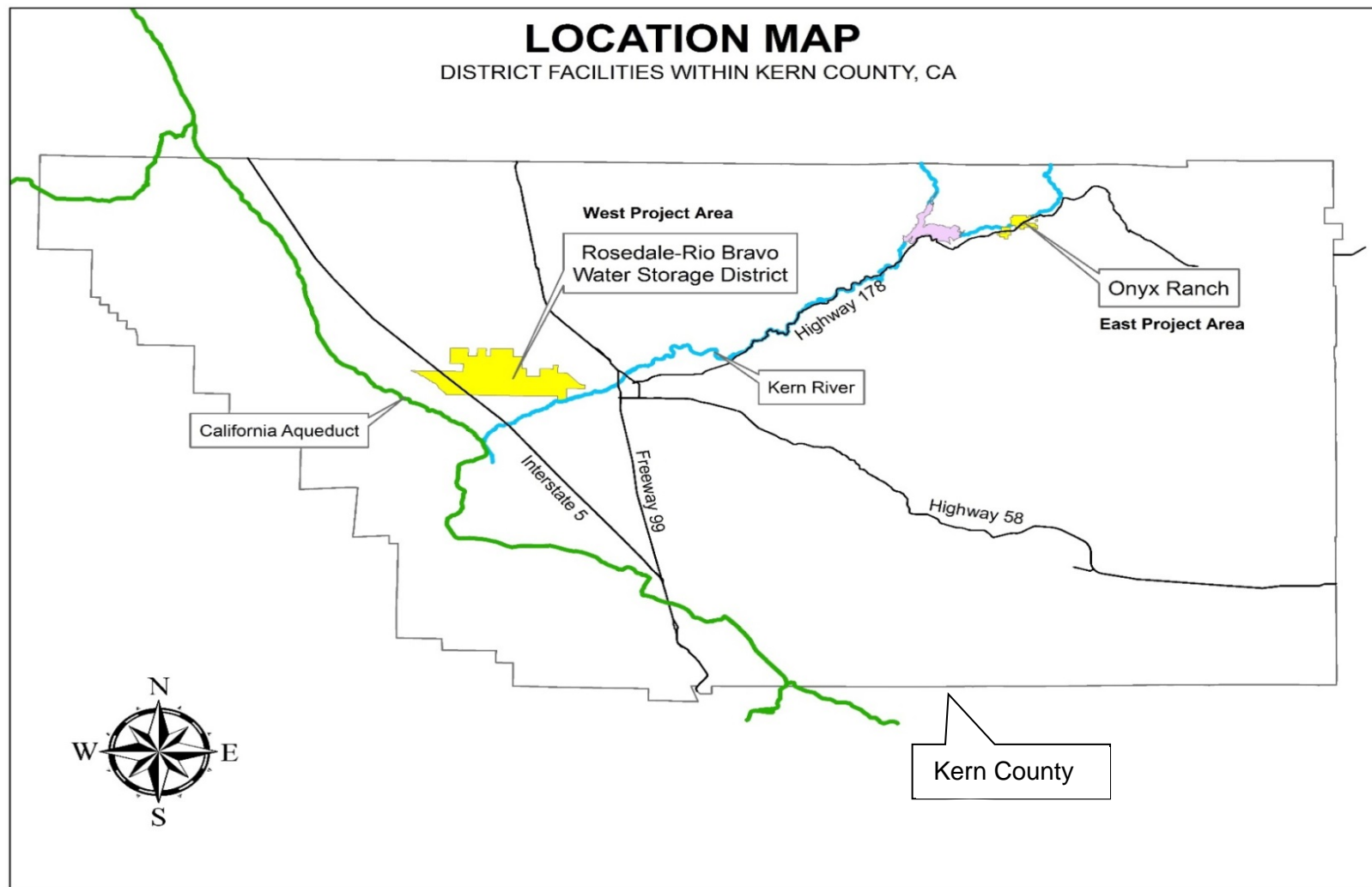


Figure 2. Location of the water district service area and Onyx Ranch in Kern County

1.1 Need for the Proposal

To conserve water, the RRBWSD is evaluating ways to improve the efficiency of water delivery to customers. The Project is designed to improve overall District system efficiency in two basic ways: by reducing the spillage and seepage of water from RRBWSD facilities; and by reducing energy consumption. The reductions will be accomplished by implementing the following actions as part of the Project:

- Installing a liner on the West Intake Canal (Figure 3). This will reduce seepage losses.
- Retrofitting pump units and control structures on Onyx Ranch to meter flows. Retrofitting will reduce over-pumping and spills.
- Retrofitting wells with variable frequency drive (VFD) units. VFD units will improve energy use efficiency.
- Installing solar well pump units on currently inactive wells or monitoring wells on Onyx Ranch (Figure 4). Solar powered pumps will reduce energy use and allow the RRBWSD to provide water to customers more efficiently.

The conserved water from the Project implementation can be used for:

- Water users via groundwater recharge for agricultural, municipal, and industrial uses.
- In-stream flows for wildlife enhancement.
- Reducing groundwater pumping.
- Increasing supply to third party banking and transfer partners.

Section 2 Proposed action and alternatives

2.1 No action alternative

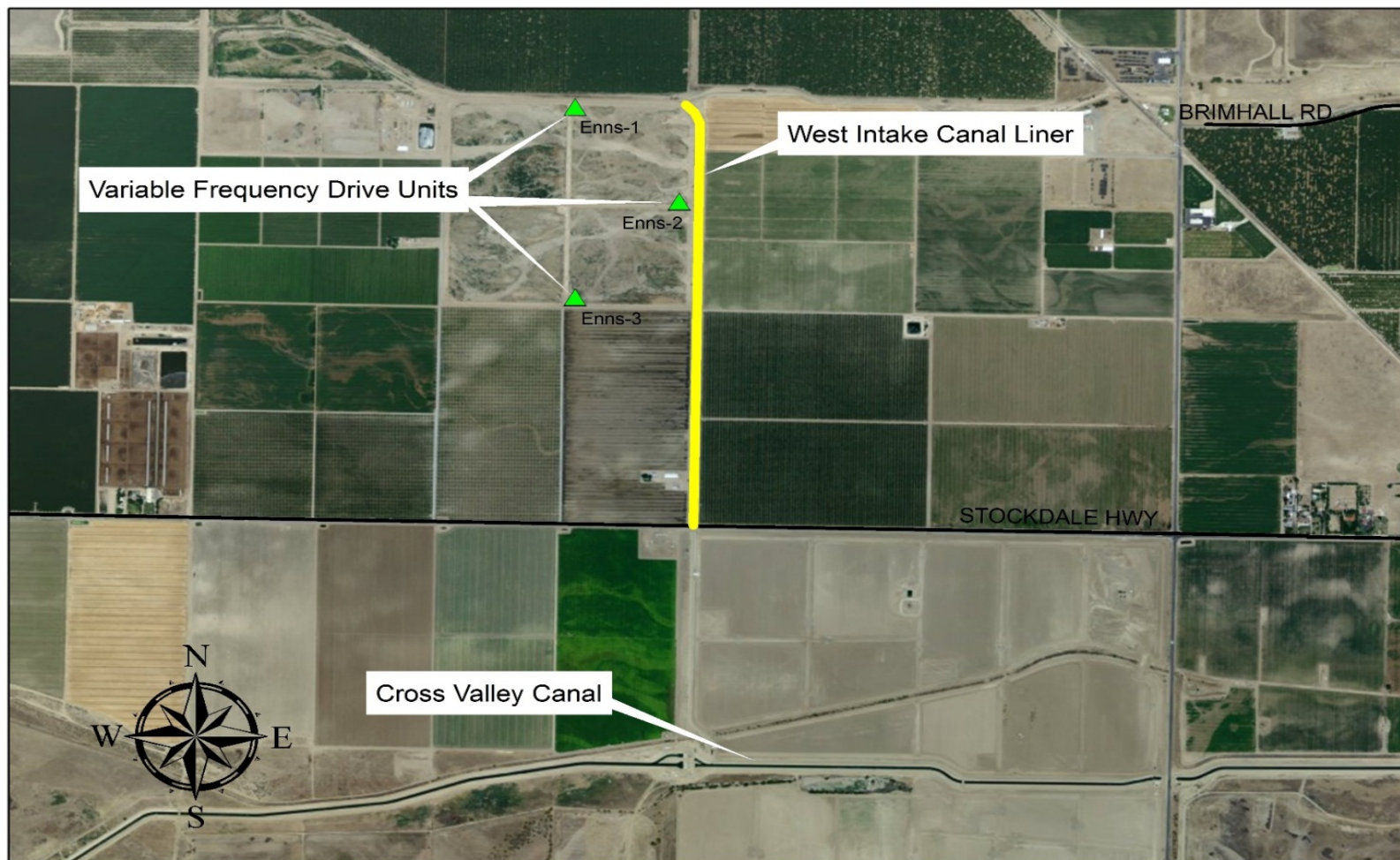
Under the No Action Alternative, Reclamation would not award the grant and the RRBWSD would continue to operate and maintain its distribution system under existing conditions.

2.2 Proposed action

Reclamation proposes to award the RRBWSD with a WaterSMART Water and Energy Efficiency grant to: retrofit a canal with a poly liner; install meter and flow control structures on existing river turnouts; install VFD pump units on three storage wells; and install three solar pump units in active irrigations wells. Specifically, the proposed project consists of the following components:

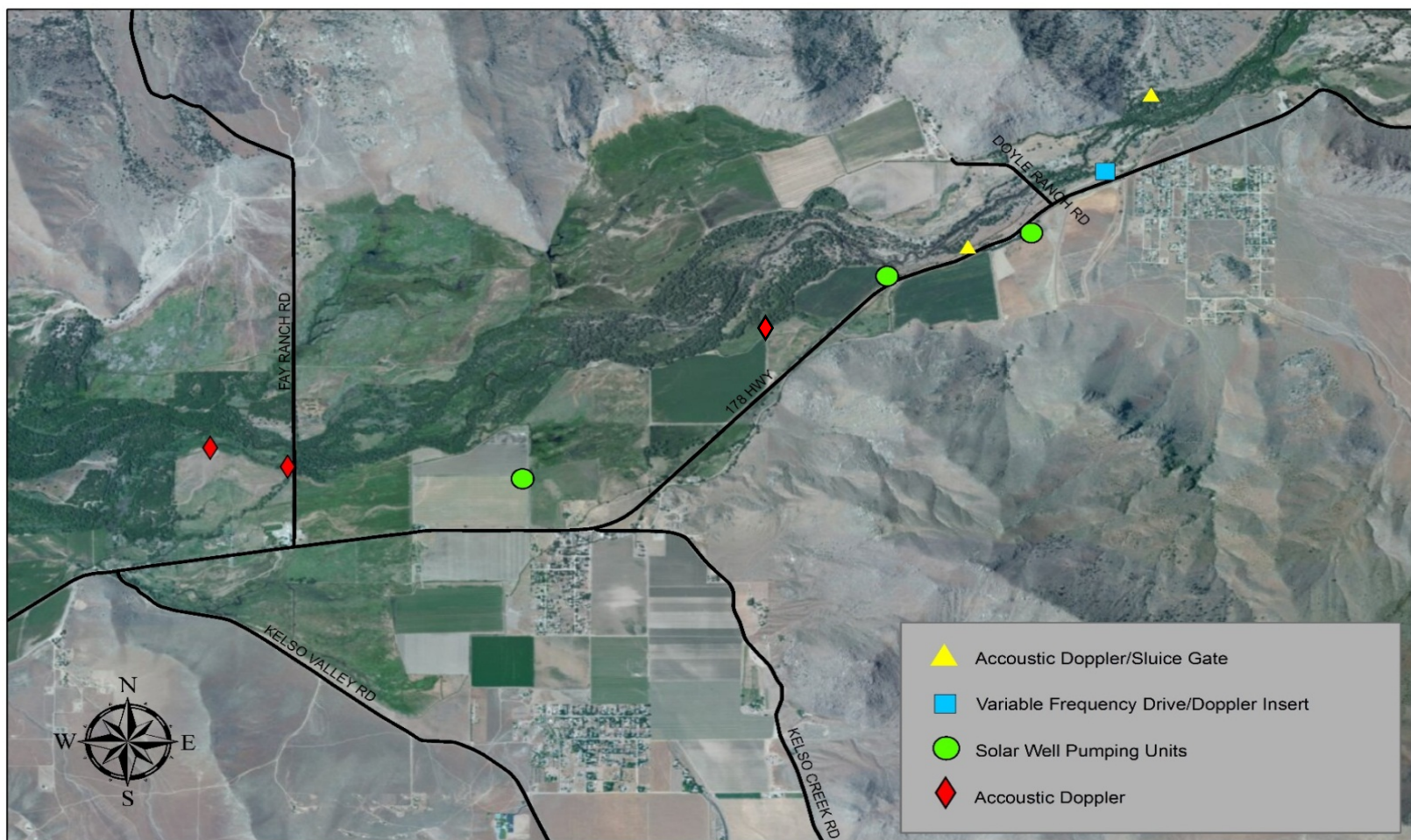
2.2.1 West Project Area

The RRBWSD currently delivers water via its West Intake Canal in the West Project Area to and from its groundwater banking and recovery project and the Cross Valley Canal, Friant-Kern



West Project Area

Figure 3. West Project Area VFD and canal liner locations



East Project Area

Figure 4. East Project Area acoustic doppler/slruise gate, VFD, solar well pumping unit and acoustic doppler installation locations

Canal, and the California Aqueduct. The West Intake is about a 2-mile canal traversing sandy loam soils; about 1 mile is concrete lined, and the remaining portion is earthen lined. The work will occur in two phases; canal grading, and installation. Ground disturbance for installation of the polymer lining would be limited to the canal prism in the earthen section. All of the work involved with the Project would be performed in previously disturbed contexts. The canal will be graded for installation as per the regularly-maintained canal prism, which currently has a top width of about 35 feet.

Once the designed canal prism is achieved, the 40-mil polymer lining will be installed. An estimated 500-foot length of polymer at 45 feet wide will be required to line the canal, and is expected to last about 20 years. Figure 5 shows an example of a similar canal lining project.



Figure 5. Example of a poly liner installed on a canal

Additionally, VFD pumping units will be installed on three wells on the West Project Site to improve efficiency. The wells are designed as high-capacity-banking wells, but are also made



Figure 6. Example of a variable frequency drive unit on a well.

available to adjacent growers for agricultural demands. Work to install the VFD units at each location would involve excavating less than a cubic yard of soil that would be stockpiled adjacent to each VFD, installing an above ground or below ground conduit for the utility hookup to the existing well system and power source, construction of a wooden form, placing concrete in the form, and removing the wooden form once the concrete has cured. The ground will be leveled by hand and either a ready mix concrete truck will deliver the concrete or it will be prepared onsite using a portable mixing unit. Each VFD unit would require a concrete pad of 100 square feet or less. Work trucks carrying the equipment and materials for each VFD unit installation, will travel on existing dirt roads to each site.

Construction of the West Project Area components is proposed to occur as soon as permitting is complete and will take about 60 workdays to complete. The canal will be de-watered and work will be performed only when the canal is dry. Equipment to be used includes a backhoe, bulldozer, dump truck, service truck, water truck, and a trencher.

2.2.2 East Project Area

The RRBWSD delivers South Fork Kern River water to its lands at Onyx Ranch and additional flows to adjacent landowners in the East Project Area. RRBWSD has evaluated the existing control and metering infrastructure and seeks to improve system operations and reduce system spills along delivery ditches, thus returning water to in-stream flows on the South Fork of the Kern River. The proposed action involves retrofitting up to nine control structures with a combination of sluice gates and acoustic Doppler flow metering devices. By making improvements, system

over- diversion and spillage could be reduced. Work in the East Project Area is expected to take about 60 days. East Project Area components to be installed are as follows:

VFD/Doppler Unit - The Mack Pumping Plant, located in the East Project Area, lifts water 30 feet from the Nicoll Ditch up to the Mack Ditch. Currently, there are two vertical turbine, single stage pumps, each capable of pumping 26 cubic feet per second. Because these pumps are not adjustable, water is pumped in excess of what is required in the Mack and Scodie Ditches. The excess water is diverted back into the river system from the pumping plant. With the incorporation of a VFD unit, operators would be able to better match the amount of water pumped to the amount of water needed. Construction would be similar to the installation of the VFDs in the West Project Area.

Acoustic/Doppler Devices and Sluice Gates – Currently there are no appropriate flow measurements directly downstream of the diversion structures for the Landers and Nicoll Ditches. To rectify the issue, sluice gates will be retrofitted with acoustic/Doppler metering devices for measuring and controlling flow. One sluice gate will be retrofitted with a Doppler device at the head of Landers Ditch on the north side of the South Fork River. Upstream of the sluice gate is an existing flashboard structure where excess flows return to the river. Metering the flow at the sluice gate will allow operators to properly maintain water levels in the ditch and minimize the diversion of excess water from the river.

A second Doppler device will be installed at the Nicoll Ditch between the South Fork and State Highway 178. A new pipeline would need to be installed at the downstream side of the existing sluice gate to incorporate the Doppler device. The pipeline installation would require excavation in the existing disturbed areas, ranging from 3 to 8 feet deep and 10 to 25 feet in length. Similar to the water course at the Landers Ditch, water diverted that is in excess of what is required is returned back to the river system before it reaches the sluice gate. The retrofits will reduce the amount of excess water diverted and subsequently spilled back into the river at both sites. In addition to the devices at the sluice gates, three Doppler devices will be installed at other sites throughout the South Fork area to improve flow measurement (see Figure 4). Figure 7 shows an example retrofitted component.



Figure 7. An example of an acoustic/Doppler meter and flow retrofit

Solar Well Pumping Units –At times there is insufficient surface water for stock water purposes within the Onyx Ranch in the East Project Area, and the ranchers access large irrigation wells to fill water troughs or truck water from off-site. By installing three solar powered pumping units in active irrigation wells in the East Project Area these costs and inefficient energy usage can be avoided altogether. A single work truck would be required to install the pump and solar units in the existing wells. An example solar well pumping unit is shown in Figure 8.



Figure 8. Example of a solar well pumping unit

2.3 Environmental Commitments

As part of the Proposed Action, the RRBWSD will implement measures to avoid and minimize potential effects to the affected environment. The following commitments are intended to reduce the potential for direct impacts to special-status plant and wildlife species that may be present in the vicinity of the Project and should be implemented as precautions to reduce identified impacts. With the successful implementation of the measures listed below, special-status species, nesting migratory bird species and wetland natural communities within the Project vicinity are not expected to be adversely affected by the Project:

- 1) The RRBWSD will follow the U.S. Fish and Wildlife Service Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance (standardized recommendations).
- 2) While not observed during the field survey (burrows or individuals), the West Project Area is within the known range for burrowing owl. Potential direct impacts (vehicle strikes or entombment) and indirect impacts such as behavior modification or nest abandonment from noise could occur. To reduce these potential impacts, a pre-activity survey should be completed no more than 10 days prior to ground disturbing activities to determine burrowing owl use in the area. If an active burrow is located, RRBWSD will consult with California Department of Fish and Wildlife 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.

- 3) Firearms and pets shall be prohibited from the Project site.
- 4) All food-related trash such as wrappers, cans, bottles, and food scraps should be disposed of in closed containers and regularly removed from the Project site. No deliberate feeding of wildlife will be permitted.
- 5) Appropriate erosion control methods shall be implemented such that no sediment is deposited from the Project site into adjacent lands or waterways.
- 6) In the East Project Area, activities have been scheduled to occur between September 1, 2015 and March 31, 2016, which is outside the nesting season of the southwestern willow flycatcher and the yellow-billed cuckoo.

Section 3 Affected Environment and Environmental Consequences

3.1 No Action Alternative

The No Action Alternative would consist of Reclamation not providing grant funding to facilitate water conservation measures at the RRBWSD. Under the No Action Alternative, there would be no change to existing conditions and current trends of the affected environment. The conveyance systems currently in place would continue to operate and the RRBWSD would continue to provide service to its users.

3.2 Proposed Action

3.2.1 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:

3.2.1.1 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 Project is not on federal lands, and will not affect or prohibit access to and ceremonial use of Indian sacred sites.

3.2.1.2 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 Project does not have the potential to affect ITA (see Appendix A).

3.2.1.3 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. Efficiency improvements to irrigation systems are unlikely to have effects to any individuals or populations within the action area. Accordingly, the proposed Project would not have disproportionately negative impacts on low-income or minority populations within the Project area.

3.2.2 Water Resources

Currently, the RRBWSD operates a water delivery system consisting of 25 miles of canals, 2 miles of pipelines, check structures, and wells all designed for the primary function of groundwater banking and conjunctive use (recharge and recovery). There are about 20 connections from this system to individual landowners that are used for in-lieu groundwater recharge purposes. The RRBWSD acquires wet-year supplies via various contracts and banking programs which require that a portion of the supplies are returned in dry years.

The RRBWSD has established partnerships with many different state, federal, and local entities to help improve water management and meet future water demands. Currently and historically, the RRBWSD has worked with Reclamation and U.S. Fish and Wildlife Service to provide water to the Kern National Wildlife Refuge in the northwest of the district. The RRBWSD also partners with Arvin-Edison WSD, Kern-Tulare Water District, and Delano Irrigation District to implement mutually beneficial recharge and recovery projects.

The RRBWSD average annual water supply (1993-2013) from all sources (Kern River, SWP, CVP, purchased banked groundwater, Exchanges, Safe Yield, and Precipitation) is about 108,000 AFY. Of these supplies, about 84,000 AFY goes to crop use, 8,000 AFY goes to urban uses, 6,500 AFY to water transfers, 4,000 AFY to recharge and migration losses.

The RRBWSD is located in the Kern subbasin of the San Joaquin Valley Groundwater Basin, which includes the Kern River and a number of small creeks. RRBWSD uses its wells to pump stored groundwater to support its groundwater banking programs. The exact number and size of pumps on private property used by the growers within the RRBWSD is not known at this time. According to the RRBWSD's Groundwater Management Plan, water use is an average of 93,000 AFY, which is almost entirely met by groundwater pumping.

The RRBWSD recently acquired about 3,400 acres of land, known as the Onyx Ranch, in the South Fork Valley of the Kern River. The Onyx Ranch property is a combination of rocky terrain, riparian habitat, irrigated pastures and meadows, and irrigated farm fields. Currently the RRBWSD is working on maintaining and improving the existing ranch operations which are in

need of modernization. Agricultural leases have been executed with experienced local operators in order to maximize benefits to the local economy.

West Project Area Water Resources

The proposed Project has the potential to impact groundwater supplies in the Kern County subbasin in the San Joaquin Valley Groundwater Basin (CDWR 2003). At the southern end of the San Joaquin Valley, the direction of groundwater flow is generally to the northwest as a result of intense agricultural, municipal, and industrial groundwater pumping. The subbasin was identified in 1978 as being in a critical condition of overdraft by the California Department of Water Resources (CDWR 2003). Overdraft was identified as having significant adverse environmental, social, or economic impacts. Average precipitation values range from 5 inches at the subbasin interior to 9 to 13 inches at the subbasin margins to the east, south, and west (CDWR 2003). The primary source of groundwater recharge is from groundwater banking programs, with secondary sources including return flows from agricultural and municipal irrigation and infiltration of flows from intermittent streams along the edge of the subbasin (Shelton et al. 2008). In general, groundwater quality throughout the region is suitable for most urban and agricultural uses, with the primary constituents of concern being total dissolved solids, nitrate, arsenic, and organic compounds (CDWR 2003).

The average Kern County subbasin water level was essentially unchanged from 1970 to 2000, after experiencing cumulative changes of about -15 feet through 1978, a 15-foot increase through 1988, and an 8-foot decrease through 1997 (CDWR 2003). However, net water level changes in different portions of the subbasin were quite variable through the period 1970-2000 (CDWR 2003). From 2007 to 2014, the average depth to groundwater has dropped from about 150 feet to 200 feet in the RRBWSD.

The RRBWSD currently delivers on average about 20,000 AFY via its West Intake Canal to and from its groundwater banking and recovery project and the Cross Valley Canal, Friant-Kern Canal, and the California Aqueduct. Conveyance losses during recovery periods are about 800 AF which are projected to occur in 1/3 of the years. By installing a poly liner in the one mile section, as shown on Figure 3, system conveyance losses will be reduced by an average of 267 AFY. In turn, more efficient conveyance will reduce groundwater pumping, effectively provide more dry-year supply, and reduce energy consumption. The Proposed Action may have temporary effects on local groundwater pumping in some years, yet would have direct benefits on water supply by conserving 267 AFY of system-wide irrigation supplies currently lost to seepage.

East Project Area Water Resources

The East Project Area proposed action has the potential to impact surface water availability in the South Fork of the Kern River due to additional water conservation projects on connected waterways (Figure 4). The East Project area is located in the Kern River Valley Basin of the Tulare Lake Hydrologic Region (CDWR 2003). The RRBWSD water is distributed to the Onyx

Ranch from the South Fork of the Kern River. RRBWSD water flows through various irrigation ditches, returns to the river downstream, and eventually flows into Lake Isabella.

According to the Hydrology and Water Quality Report for the Kern River Valley Specific Plan, the estimated volume of water in the South Fork portion of the Kern River Valley Basin is about 768,000 AF. It is an alluvial filled valley of about 2 miles wide by 200 feet deep. Depth to groundwater varies from ground surface to about 50 feet.

The water conservation projects have the potential to reduce tailwater spills resulting in either reduced diversions or reduced groundwater pumping. Onyx Ranch's average annual water supply is 24,000 AFY from the South Fork of the Kern River. This reflects the average diversion reflected on the Statements of Diversion as filed with the State Water Resources Control Board for 2009-2012 by the previous owner. The diverted water irrigates about 1,700 acres of crops and pastures, groundwater recharge, conveyance losses, and return flows to the river itself and other ditch systems. According to previous owner records, an average of about 5,000 AFY was spilled back into various ditch and river systems. The proposed Project is designed to reduce the amount of water pumped from, and subsequently spilled back into the surface water systems. With the installation of the East Project Area components, more water will be left directly instream to follow the natural processes through the South Fork area. RRBWSD would reduce energy usage and reduce over-diversion by as much as 17%.

3.2.3 Air Quality

Onyx Ranch is located in the Mojave Desert Air Basin (MDAB) while the West Project Area is located in the San Joaquin Valley Air Basin (SJVAB). Onyx Ranch is within the Kern County Air Pollution Control District (KCAPCD) and all actions in the main RRBWSD boundaries are in the San Joaquin Valley Air Pollution Control District (SJVAPCD).

The SJVAB is within National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) for criteria pollutants of concern except for: ozone (O_3), inhalable particulate matter between 2.5 and 10 microns in diameter (PM_{10}), and particulate matter less than 2.5 microns in diameter ($PM_{2.5}$). As a result, the emissions of most concern are O_3 (which includes precursors such as volatile organic compounds [VOC] and nitrogen oxides [NO_x]), PM_{10} , and $PM_{2.5}$. Table 1 below shows the attainment status and *de minimis* threshold (measurable amount above ambient conditions) for general conformity for the criteria pollutants of most concern.

Table 1. SJVAB Attainment Status and *De Minimis* Thresholds for Federal Conformity Determinations

Pollutant	Attainment Status ^a	(tons/year)
VOC (as O ₃ precursor)	Nonattainment ^d	10 ^b
NO _x (as an O ₃ precursor)	Nonattainment ^d	10 ^b
PM ₁₀	Nonattainment (CAAQS) Attainment (NAAQS)	15 ^c
PM _{2.5}	Nonattainment	100 15 ^c
^a Source: http://www.arb.ca.gov/design/adm/adm.htm ^b 40 CFR 93.153 ^c SJVAPCD Threshold ^d The SJVAB is designated as Extreme for O ₃ NAAQS: http://www.epa.gov/airquality/ozonepollution/designations/2008standards/final/region9f.htm		

The MDAB is within NAAQS and CAAQS for criteria pollutants of concern except for: O₃, inhalable particulate matter between 2.5 and 10 microns in diameter (PM₁₀). As a result, the emissions of most concern are O₃ (which includes precursors such as VOCs and nitrogen oxides [NO_x]), PM₁₀, and PM_{2.5}. Table 2 shows the attainment status and *de minimis* threshold for general conformity for the criteria pollutants of most concern.

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

Pollutant	Attainment Status ^a	(tons/year)
VOC (as an O ₃ precursor)	Nonattainment	10 ^b
NO _x (as an O ₃ precursor)	Attainment	25 ^c
PM ₁₀	Nonattainment (CAAQS) Attainment (NAAQS)	15 ^c
PM _{2.5}	Attainment	100 15 ^{use SJVAPD}
^a Source: http://www.arb.ca.gov/design/adm/adm.htm ^b 40 CFR 93.153 ^c KCAPCD Threshold ^d The SJVAB is designated as Extreme for O ₃ NAAQS: http://www.epa.gov/airquality/ozonepollution/designations/2008standards/final/region9f.htm		

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 Project would be localized in nature and decrease with distance. The ground disturbing activities would result in the temporary emissions of fugitive dust and vehicle combustion pollutants during the following activities:

- Minimized on-site earthwork (shoveling and stockpiling)
- On-site construction equipment and haul truck engine emissions

The electrical contractors would arrive at each site in a work truck that would run for two hours at a time. Grading for installation of the liner and excavation for electrical conduits would cause construction equipment to operate for 8 hours per day. All construction work would occur within existing canals and structures. Calculated emissions from the Proposed Action were estimated using the 2013 California Emissions Estimator Model (version 2013.2.1) for reactive organic gases (ROG)¹, NO_x, PM₁₀, and PM_{2.5}. Total Proposed Action emissions are presented in Table 3.

Table 3. Estimated Project Emissions^a

West Project Area		
Pollutant	Unmitigated (tons/year)	Mitigated (tons/year)
ROG/VOC	2.3	2.3
NO _x	2.1	2.1
PM ₁₀	0.4	0.3
PM _{2.5}	0.2	0.2
East Project Area		
Pollutant	Unmitigated (tons/year)	Mitigated (tons/year)
ROG/VOC	0.5	0.5
NO _x	0.6	0.6
PM ₁₀	0.1	0.1
PM _{2.5}	0.1	0.1

^a Source: CalEEMod Version 2013.2.2

The Proposed Action has been estimated to emit less than the *de minimis* threshold for NO_x and ROG/VOC as O₃ precursors, PM_{2.5} and PM₁₀; therefore, a federal general conformity analysis report is not required. Notwithstanding this observation, the Proposed Action would comply with the SJVAPCD's Regulation VIII (SJVAPCD 2004) control measures for construction emissions of PM₁₀. 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, even with dust suppression measures not implemented, the estimated PM_{2.5} and PM₁₀ emissions from the Proposed Action would still be well below the respective SJVAB and MDAB thresholds.

Also, with the addition of the three solar pump units in the East Project Area, it will no longer be necessary to haul water onsite. Cumulatively, a reduction in vehicle emissions will result from the elimination of about 200 5-mile truck deliveries each year.

¹ The term "volatile organic compounds" are synonymous with "reactive organic gases" for the purposes of this document as both terms refer to hydrocarbon compounds that contribute to O₃ formation.

3.2.4 Biological Resources

The West Project Area is on the open flats of the San Joaquin Valley, west of Bakersfield, at 320 feet above mean sea level. Currently it is characterized as a dry open valley bottom, but it is within the historical Kern River Delta; the historical Goose Lake Slough is immediately to the north and the 1868 Kern River channel is to the south. Prior to reclamation and channelization, the region would have been a low lying, water rich area characterized by sloughs, marshes and swamps. Occasionally inundated by floodwaters, in most years the region would have been a swamp during the winter rainy season and marsh land during other parts of the year. Historical and recent land-use has changed the vegetation that was once present within and near the West Project area, which now consists of orchards and agricultural fields. Riparian Woodlands were likely present along Goose Lake Slough, which was channelized with the construction of the Cross Valley Canal, and now operates as a controlled groundwater conveyance facility. Although the West Project area may have included the Valley Grassland community, depending upon drainage and seasonal storm systems, freshwater marshes are more likely to have been present.

The East Project Area in the South Fork Kern River Valley, in contrast, is an upland alluvial valley bottom surrounded by steep mountainous slopes. With elevation ranging from about 2640 to 2800 feet above mean sea level, it falls mainly within chaparral/sagebrush vegetation communities. Jeffrey pine (*Pinus jeffryi*), mountain mohagany (*Cercocarpus ledifolius*), California juniper (*Juniperus californica*) and pinyon pine (*Pinus monophylla*) are found on the slopes, with sagebrush (*Artemisia tridentata*), rabbitbrush (*Chrysothamnus viscidiflorus*, and/or *Ericameria nauseosa*), bitterbrush, flannel bush (*Fremontodendron californicum*), and various grasses historically on the open valley flats, and riparian woodlands adjacent to the drainage, with cottonwood (*Populus fremontii*) and willow (*Salix laevigata*). Seasonal flooding combined with historical flood control and irrigation ditches periodically change or have changed the drainage channel and have altered the distribution of water and vegetation on the valley bottom. Use of the valley bottomlands for agriculture (primarily row crops and alfalfa) and for livestock grazing has further changed the original environment. Riparian environments today follow the stream channels down the valley floor with intervening areas of active and fallowed agricultural fields and pastures.

3.2.4.1 Special Status Species

The Project and associated components are located within the geographic range of several threatened and/or endangered wildlife taxa. Based on general habitat conditions present in the general vicinity, the following wildlife species were evaluated: Tipton kangaroo rat (*Dipodomys nitratoideus nitratoideus*), San Joaquin kit fox (*Vulpes macrotis mutica*), burrowing owl (*Athene cunicularia*), western pond turtle (*Emys marmorata*); foothill yellow-legged frog (*Rana boylei*), yellow-billed cuckoo (*Coccyzus americanus occidentalis*), southwestern willow flycatcher (*Empidonax traillii extimus*); as well as federally-designated Critical Habitat for the southwestern willow flycatcher and federally-proposed Critical Habitat for the yellow-billed cuckoo. Additionally, several special-status plant species were considered, including: California jewelflower (*Caulanthus californicus*), recurved larkspur (*Delphinium recurvatum*), Kern

mallow (*Eremalche parryi* ssp. *kernensis*), Hoover's woolly star (*Eriastrum hooveri*), San Joaquin woollythreads (*Monolopia congdonii*), alkali mariposa lily (*Calochortus striatus*), and rose-flowered larkspur (*Delphinium purpusii*). Based on general location and conditions in the vicinity, several other special-status species known to occur in the region were eliminated from further consideration due to specific habitat requirements that are not expected on or near Project components.

Listed plant and animal species are protected primarily through the Federal Endangered Species Act (ESA), which prohibits the "take" of any listed species. Under the ESA, "take" is defined as to harm, harass, pursue, wound or kill, or to attempt to engage in such a conduct. Additionally, destruction or adverse modification of designated critical habitat can also constitute a "take." The proposed Project is not expected adversely affect any federally listed species or critical habitat.

3.2.4.2 Species Surveys

Reconnaissance-level surveys for special-status species were conducted in the West Project Area (e.g., West Intake Canal, Solar Well Pumping Units, and the Enns Wells 1-3 VFD Units) by McCormick Biological, Inc., on October 8, 2014 and on the East Project Area on October 16, 2014. The proposed Project component sites were inspected visually by walking linear and meandering transects over the Project areas and intended to achieve 100% coverage. In addition, a buffer zone of about 200-foot around each component site was walked.

Direct observations of special-status wildlife species and important habitat elements for special-status species plants and wildlife were noted if encountered. In addition, if any indirect evidence of special-status species presence and/or potential habitat for each species evaluated was noted if encountered. All plant and wildlife taxa observed during the surveys were identified to the extent possible.

3.2.4.2.1 Findings Specific to West Project Area

Agricultural fields occur along both sides of the canal. Each well location has heavy disturbance with little or no vegetation present. It appears that agricultural activities continue to disturb the area. Ruderal plant species dominate the site. No native tree species were noted.

Because signs of unidentified kangaroo rats were found during the reconnaissance-level survey, McCormick Biological, Inc. completed a 5-day trapping session for the Tipton kangaroo rat at the West Project area from September 22 to September 27, 2105. A total of 100 Sherman traps were set each night. The trapping effort caught 11 deer mice (*Peromyscus maniculatus*) and 2 Heerman's kangaroo rats (*D. heermanni*). No Tipton kangaroo rats were caught.

3.2.4.2.2 Findings Specific to East Project Area

Portions of the Onyx Ranch project, (i.e., well improvements, VFDs, and solar well installation) occur on existing well facilities in active farmland and should not impact habitat. However, as proposed, portions of the project involve retrofitting control structures with a combination of

sluice gates and doppler acoustic flow metering devices that occur in riparian habitat along the South Fork of the Kern River. The vegetation community present in this area is valley/foothill riparian (CDFW 1988). Recent disturbance to the project sites was evident. All plants and wildlife observed during the survey were noted and identified to the extent possible.

Federally-designated Critical Habitat exists for the southwestern willow flycatcher throughout the valley foothill riparian area of the South Fork of the Kern River. Areas within the geographical area occupied by the species at the time it was listed are included in a critical habitat designation if they contain physical or biological features which are essential to the conservation of the species, and which may require special management considerations or protection (USFWS 2013). For these areas, critical habitat designations identify, to the extent known using the best scientific and commercial data available, those physical or biological features that are essential to the conservation of the species. Similarly, critical habitat for the yellow-billed cuckoo has been proposed within the South Fork riparian area as well. The primary constituent elements upon which the proposed designation is based include riparian woodlands, and adequate insect prey base, and a dynamic riverine process (USFWS 2014).

Some of the proposed Project equipment modifications exist in or near the designated critical habitat for the southwestern willow flycatcher and the proposed critical habitat for the yellow-billed cuckoo. The Project is not expected to adversely modify critical habitat. Only one of the components to be upgraded lies within the boundaries of critical habitat, and retrofitting will not require the removal of woody riparian vegetation. The reduction in water pumped will reduce over-pumping and spillage directly back into the river. The reduction in water pumped will leave more water in the natural riparian system.

3.2.5 Cultural Resources

An intensive Class III inventory/Phase I cultural resources survey was conducted for the Project. The survey was conducted by ASM Affiliates, Inc., with David S. Whitley, Ph.D., RPA, serving as principal investigator and Shannon Davis, M.A., RPH, as lead Architectural Historian. Background studies and fieldwork for the survey were completed from October - December 2014. The study was undertaken to assist with California Environmental Quality Act (CEQA) compliance and also to provide compliance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended (16 USC 470; 36 CFR Part 800).

A records search of site files and maps was conducted at the Southern San Joaquin Valley Archaeological Information Center (AIC), California State University, Bakersfield, and a search of the Native American Heritage Commission (NAHC) Sacred Lands File was completed. These investigations determined that the study area had not been previously surveyed and no sites or sacred lands were known within it. Prehistoric sites had been recorded within a half-mile radius of the Onyx Ranch portion of the Project.

The Class III inventory/Phase I survey fieldwork was conducted in November, 2014. Five linear historical resources were identified and recorded during the study: four earthen irrigation ditches and the West Intake Canal. Evaluation of these resources for National Register of Historic

Places (NRHP) and California Register of Historical Resources (CRHR) eligibility has resulted in the recommendation that they be determined not eligible or significant.

Section 4 Consultation and Coordination

4.1 Agencies and Groups Consulted

Reclamation consulted and coordinated with the following agencies and groups in preparation of the EA:

- U.S. Fish and Wildlife Service, Sacramento Field Office
- California Office of Historic Preservation
- Rosedale Rio Bravo Water Storage District

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

Section 7 of the Endangered Species Act 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 proposed Project actions may affect, but are not likely to adversely affect the Tipton kangaroo rat, and is also not likely to adversely modify designated Critical Habitat for the Southwestern willow flycatcher.

Reclamation has completed a section 7 consultation and USFWS has concurred with these determinations (Appendix B).

4.3 National Historic Preservation Act (16 USC § 470 et seq.)

The National Historic Preservation Act of 1966, as amended (16 USC 470 et seq.) is the primary Federal legislation that outlines the Federal Government's responsibility to cultural resources. Section 106 of the National Historic Preservation Act requires that cultural resources are considered in the planning and implementation of projects undertaken by the Federal Government. Reclamation has taken into consideration the effects of the project on cultural resources listed on or eligible for inclusion in the National Register of Historic Places, and has provided the Advisory Council on Historic Preservation an opportunity to comment on the effects. A letter was received from the California Office of Historic Preservation on December 18, 2015, concurring with Reclamation's determination of eligibility and finding of historic properties affected and determination of eligibility for the Project (Appendix C).

Section 5 References

- [CalEEMOD] California Emissions Estimator Model. 2013. Windows Version 2013.2.1. October 28, 2013.
- [CDFW] California Department of Fish and Wildlife. 1988. A Guide to Wildlife Habitats of California. Mayer, K.E. and Laudenslayer, Jr., W. F. editors. Retrieved November 4, 2015 from https://www.dfg.ca.gov/biogeodata/cwhr/wildlife_habitats.asp
- [CDWR] California Department of Water Resources. 2003. California's Ground Water. Bulletin 118. Individual Basin Descriptions.
- Healthy Communities Institute. 2014. Retrieved September 22, 2015, from <http://www.healthykern.org/modules.php?op=modload&name=NS-Indicator&file=indicator&iid=14064558>
- Kern Economic Development Corporation. 2012. *2012 Kern County Labor Market Study*. Retrieved September 11, 2015, from <http://kedc.com/wp-content/uploads/2013/11/Kern-County-Labor-Market-Study.pdf>
- [RRBWSD] Rosedale-Rio Bravo Water Storage District. 2014. Final Rosedale-Rio Bravo Water Storage District 2013 Operations Report. Retrieved December 15, 2015 from: <http://www.rrbwsd.com/wp-content/uploads/2015/03/Final-RRBWSD-2013-Operations-Report.pdf>
- Shelton, J.L., Pimentel, Isabel, Fram, M.S., and Belitz, Kenneth. 2008. Ground-water quality data in the Kern County subbasin study unit, 2006—Results from the California GAMA Program: U.S. Geological Survey Data Series 337. 75 pages. Available at <http://pubs.usgs.gov/ds/337>
- SJVAPCD. 2004. Rules and Regulations. Regulation VIII. Rule 8021. Retrieved November 4, 2015 from: <http://www.valleyair.org/rules/currentrules/r8021.pdf>
- [USFWS] U.S. Fish and Wildlife Service. 2014. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for Southwestern Willow Flycatcher; Final Rule. Federal Register (78:344-532).
- [USFWS] U.S. Fish and Wildlife Service. 2014. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Western Distinct Population Segment of the Yellow-Billed Cuckoo; Proposed Rule. Federal Register (79:48548-48652).

Appendix A: ITA Concurrence



Meier, Andrea <ameier@usbr.gov>

Fwd: ITA for Rosedale Rio Bravo

1 message

Lefevre, Jamie <jlefevre@usbr.gov>
 To: Andrea Meier <ameier@usbr.gov>

Tue, Jun 2, 2015 at 3:41 PM

----- Forwarded message -----

From: **STEVENSON, RICHARD** <rstevenson@usbr.gov>
 Date: Tue, Jun 2, 2015 at 3:37 PM
 Subject: Re: ITA for Rosedale Rio Bravo
 To: "Lefevre, Jamie" <jlefevre@usbr.gov>

The closest ITA to the proposed East Project Area is a location known as 50H IN14 about 2.56 miles northwest of the intersection of Sections 7, 12, 13 and 18 of T26S/R34E. 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 not is the proposed activity on actual Indian lands. It is reasonable to assume that the proposed action will not have any impacts on ITAs.

The closest ITA to the proposed West Project Area is located in Sections 34 and 35, of T29S/R65E, Mt. Diablo meridian, about 46.7 miles away from Sections 34, 35. It is reasonable to assume that the proposed action will not have any impacts on ITAs.

Richard Stevenson
 Deputy Regional Resources Manager

On Thu, May 28, 2015 at 11:02 AM, Lefevre, Jamie <jlefevre@usbr.gov> wrote:
 Sorry, I forgot to attach the form.

Jamie

----- Forwarded message -----

From: **Lefevre, Jamie** <jlefevre@usbr.gov>
 Date: Thu, May 28, 2015 at 11:00 AM
 Subject: Fwd: ITA for Rosedale Rio Bravo
 To: RICHARD STEVENSON <rstevenson@usbr.gov>

Hi Dick,

I'm requesting an ITA coordination for the Rosedale Rio Bravo project. The information needed to complete the coordination is on the attached form.

Thanks!
 Jamie

----- Forwarded message -----

From: **Seabrook, Kristi** <kseabrook@usbr.gov>
 Date: Thu, May 28, 2015 at 10:22 AM
 Subject: Re: ITA for Rosedale Rio Bravo
 To: "Lefevre, Jamie" <jlefevre@usbr.gov>

<https://mail.google.com/mail/u/0/?ui=2&ik=9e58561d1d&view=pt&q=ita%20rosedale&q=usbr&search=query&th=14db67011ae1ef49&siml=14db67011ae1ef49>

1/3

Appendix B: Endangered Species Act



IN REPLY REFER TO:

United States Department of the Interior

BUREAU OF RECLAMATION
Mid-Pacific Regional Office
2800 Cottage Way
Sacramento, CA 95825-1898

MP-152
ENV-7.00

JUN 16 2015

MEMORANDUM

To: Chief, San Joaquin Valley Division, Sacramento Fish and Wildlife Office
Attention: Thomas Leeman

From: Anastasia T. Leigh
Regional Environmental Officer

Subject: Request for Formal Consultation for the Proposed Rosedale Rio Bravo Water Storage District (WSD) Water Conservation, Energy Efficiency, and Solar Power Project (Project), Kern County, California

Reclamation is evaluating a request for a CALFED Water Use Efficiency Grant from the WSD to install a liner in a canal, retrofit pump units and control structures to meter flows, retrofit wells with variable frequency drive units, and install solar well pumps for livestock watering. These actions would reduce seepage losses, reduce over deliveries, reduce spills, improve energy use and efficiency, and reduce water transportation costs for WSD customers. Conserved water from these actions could be used for groundwater recharge, in-stream flows for wildlife, reducing groundwater pumping, and increasing supplies to third-party groundwater banks and transfer partners. The Project will occur on two sites: (1) the Enns Project site (West Project Site), and (2) the Onyx Ranch site (East Project Site). The West Project Site is located in the WSD service area, west of the City of Bakersfield. The East Project Site is located on a ranch owned by the WSD upstream of the service area on the Kern River near Weldon. The Project has the potential to have adverse effects on the federally listed as endangered Tipton kangaroo rat (*Dipodomys nitratoides nitratoides*) and San Joaquin kit fox (*Vulpes macrotis mutica*).

In the West Project Site, WSD delivers water, via its West Intake Canal, to and from its groundwater banking and recovery project, Cross Valley Canal, Friant-Kern Canal, and the California Aqueduct. The West Intake Canal is a 2-mile-long canal; one mile is concrete lined and the other earthen. By installing a poly-liner on the 1-mile section that is earthen, system conveyance losses due to seepage would be reduced by 267 acre-feet per year (AFY). The liner would be keyed into the canal bank, which would involve ground disturbance. Variable frequency drive (VFD) units would also be installed on three wells on the West Project Site. Once installed, VFDs save energy by automatically controlling pump speeds by scaling up or down depending on the flow rate demands and pressure on a well. The wells on the East Project

Site where the VFDs would be installed are designed as high-capacity-banking return wells, but are also made available to adjacent growers to meet cropping demands. A concrete pad 100 square feet or less would be constructed prior to the installation of each of the VFD units.

Onyx Ranch and its associated water rights are owned and managed by the WSD. The WSD leases the land to local ranchers. Onyx Ranch's average annual water supply is 24,000 AFY from the South Fork of the Kern River. The WSD currently maintains and improves existing ranch operations, which are in need of modernization. The WSD would install a VFD unit on the Mack Pumping Plant, three solar-powered pump units on wells, and meter and flow retrofits (acoustic doppler and acoustic doppler with sluice gates) on four water delivery (irrigation) ditches. The installation of these devices would involve minor ground disturbance and includes construction of small concrete pads (less than 10 feet by 10 feet) and the installation of fencing to protect the units from cattle.

The enclosed consultation information describes the avoidance and minimization measures that would be implemented by the WSD to reduce potential Project effects on the Tipton kangaroo rat and the San Joaquin kit fox.

With implementation of the Project, including the avoidance and minimization measures, Reclamation has determined that implementation of the West Project Site may affect and is likely to adversely affect Tipton kangaroo rat and requests formal consultation pursuant to Section 7 of the Endangered Species Act. Reclamation has determined that the Project implementation on the West Project Site may affect, but is not likely to adversely affect San Joaquin kit fox and requests U.S. Fish and Wildlife Service (Service) concurrence. Reclamation has determined that there will be no effect on listed species from Project implementation on the East Project Site.

The attachments provide the information necessary for the Service to initiate formal consultation regarding Project effects on the West Project Site. We appreciate your early feedback on this action and look forward to working with you during this process.

If you have any questions or need further clarification, please contact Ms. Andrea Meier, Natural Resources Specialist, at 916-978-5041 or ameier@usbr.gov.

Attachments – 2



United States Department of the Interior

BUREAU OF RECLAMATION
Mid-Pacific Regional Office
2800 Cottage Way
Sacramento, CA 95825-1898

IN REPLY REFER TO:

MP-152
ENV-7.00

NOV 02 2015

MEMORANDUM

To: U.S. Fish and Wildlife Service
Field Supervisor, Sacramento Fish and Wildlife Service
Attn: Joy Winckel

From: Anastasia T. Leigh 
Regional Environmental Officer

Subject: Request for Change from Formal Consultation to Informal Consultation for the Proposed Rosedale Rio Bravo Water Storage District (WSD) Water Conservation, Energy Efficiency, and Solar Power Project (Project), Kern County, California

Pursuant to Section 7 of the Endangered Species Act (ESA) (16 U.S.C. § 1531 *et seq.*), the Bureau of Reclamation (Reclamation) requested formal consultation with the U.S. Fish and Wildlife Service (Service) in a memorandum dated June 16, 2015, for the proposed Rosedale Rio Bravo Water Storage District (WSD) Water Conservation, Energy Efficiency, and Solar Power Project (Project), Kern County, California. Based on additional project information gathered subsequent to the formal request, Reclamation has determined that the project may affect, but is not likely to adversely affect, the federally listed as endangered Tipton kangaroo rat (*Dipodomys nitratooides nitratooides*) and San Joaquin kit fox (*Vulpes macrotis mutica*); additionally Reclamation has determined that the project will not destroy or adversely modify designated critical habitat for the Southwestern willow flycatcher (*Empidonax traillii extimus*), and proposed critical habitat for the western distinct population segment of the yellow-billed cuckoo (*Coccyzus americanus*). Because these determinations differ from those provided by Reclamation in the June 16, 2015 consultation request, Reclamation is hereby requesting withdrawal of formal consultation and instead requests informal consultation for the project.

Along with the June 16, 2015 consultation request memorandum, Reclamation attached information regarding the project description, including anticipated effects to federally listed species. Since that time, conversations and e-mail correspondence between Reclamation and the Service have refined the project description and clarified potential effects to listed species, and listed species critical habitat. Additionally, McCormick Biological, Inc., completed a 5-day trapping session following Service protocols for the Tipton kangaroo rat at the proposed project site, and did not encounter the species (see attachment).

Based on the additional information, Reclamation requests Service concurrence with the determination that the proposed project may affect, but is not likely to adversely affect, the Tipton kangaroo rat and San Joaquin kit fox, and is not likely to destroy or adversely modify designated critical habitat for the southwestern willow flycatcher or proposed critical habitat for the yellow-billed cuckoo.

Work is scheduled to begin in mid-December, 2015. The following avoidance and minimization measures are included as part of the updated project description:

1. Within thirty days prior to ground disturbance activities, a qualified biologist will complete a pre-activity survey to assess site conditions. This will include efforts to identify kit fox and kangaroo rat activity.
2. The WSD will follow the U.S. Fish and Wildlife Service Standardized Recommendations for Protection of the Endangered San Joaquin kit Fox Prior to or During Ground Disturbance (standardized recommendations).
3. Firearms and pets shall be prohibited from the project site.
4. All food-related trash such as wrappers, cans, bottles, and food scraps should be disposed of in closed containers and regularly removed from the project site. No deliberate feeding of wildlife is allowed.
5. Appropriate erosion control methods should be implemented such that no sediment is deposited from the project site into adjacent lands or waterways.

If you have any questions or need further clarification, please contact Mr. Harry Kahler, Natural Resources Specialist, at 916-978-5216 or hkahler@usbr.gov.

Attachment



**McCORMICK
BIOLOGICAL, INC.**

Biological Sciences – Inventory, Permitting, and Planning

September 30, 2015

Rosedale-Rio Bravo Water Storage District
Attn. Dan Bartel
894 Allen Road
P.O. Box 20820
Bakersfield, CA 93390

Subject: Trapping Results for the West Intake Canal Lining Project

Mr. Bartel:

At your request, McCormick Biological, Inc. (MBI) completed a 5-day trapping session targeting *Dipodomys nitratoides nitratoides* (Tipton kangaroo rat; TKR) on the project site for the West Intake Canal Lining Project. The trapping was conducted by Mr. Benjamin Ruiz, a biologist authorized for TKR trapping activities under permits issued by the California Department of Fish and Wildlife (SC009231 and SC002824) and the United States Fish and Wildlife Service federal permit number TE787644-6. This letter is intended to report MBI's results of the trapping session conducted between September 22, 2015 and September 27, 2015.

Trapping activities were conducted on both the west and east sides of the project site. A total of 100 Sherman traps with millet bait and a paper towel, were deployed on each of the 5 days of trapping, with 50 traps placed on the west and 50 traps placed on the east side of the project site. Traps were baited no more than 1 hour before dark and were checked for captures in two subsequent sessions spaced at 3-hour increments following initial baiting.

During the trapping session, MBI captured and released a total of 11 *Peromyscus maniculatus* (Deer mouse), and 2 *Dipodomys heermanni* (Heermann's kangaroo rat) individuals. No TKR were captured or observed onsite during trapping activities for this project. This concludes the results and trapping information for the West Intake Canal Lining Project.

Thank you for the opportunity to provide biological consulting services. If you have any questions or require additional information, please do not hesitate to contact me.

Sincerely,

Benjamin Ruiz
Senior Biologist

P.O. Box 80983, Bakersfield, California 93380 ♦ 4031 Alken Street, Suite B-1, Bakersfield, California 93308
Office: (661) 589-4065 ♦ Fax: (661) 588-2072 ♦ E-mail: admin@mccormickbiologicalinc.com



United States Department of the Interior



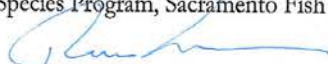
In Reply Refer to:
08ESMF00-
2015-I-0929

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Suite W-2605
Sacramento, California 95825-1846

DEC 18 2015

Memorandum

To: Regional Environmental Officer, U.S. Bureau of Reclamation, Mid-Pacific Regional Office, Sacramento, California

From: Chief, San Joaquin Division, Endangered Species Program, Sacramento Fish and Wildlife Office, Sacramento, California 

Subject: Consultation on the Rosedale Rio Bravo Water Storage District Water Conservation, Energy Efficiency, and Solar Power Project, Kern County, California

This memorandum acknowledges the U.S. Fish and Wildlife Service's (Service) November 9, 2015 receipt of the U.S. Bureau of Reclamation's (Reclamation) request for concurrence with the determination that the proposed Rosedale Rio Bravo Water Storage District (District) WaterSmart Grant for Water Conservation, Energy Efficiency, and Solar Power Project (proposed project) in Kern County, California, may affect, but is not likely to adversely affect (NLAA) the federally-listed as endangered San Joaquin kit fox (*Vulpes macrotis mutica*), Tipton kangaroo rat (*Dipodomys nitratooides nitratooides*), southwestern willow flycatcher (*Empidonax traillii eximius*) and the federally-listed as threatened yellow-billed cuckoo (*Coccyzus americanus*) or adversely modify designated critical habitat. This response is provided pursuant to section 7(a)(2) of the Endangered Species Act of 1973 (Act) (16 U.S.C. 1531 *et seq.*). We received your initial request for consultation on June 24, 2015 and a revised request for consultation on November 9, 2015.

Reclamation has requested initiation of informal consultation under the Act. Our response is based on the following information: (1) An Initiation Memo (and enclosures) dated June 16, 2015 from Reclamation to the Service requesting formal and informal consultation, (2) a Biological Reconnaissance Survey Results Report by McCormick Biological Inc., dated February 2015, (3) a revised Initiation Memo dated November 2, 2015 refining the request for consultation to informal for all species considered and clarifying potential effects to listed species and critical habitat, (4) a summary of trapping results by McCormick Biological Inc., dated September 30, 2015 for the West Project Site (5) the 2014 WaterSmart grant application from the District for the proposed project, (6) electronic mail between Reclamation and the Service, (7) and other information available to the Service.

The Service notified Reclamation via email on October 26th that the federally-listed as endangered least Bell's Vireo (*Vireo bellii pusillus*) has been documented in Kern County in the vicinity of the East

Project Site. Reclamation has determined that the proposed project would have no effect on this species. The determination is based on the relatively small effects, both temporary and permanent, that are scheduled to occur during the non-breeding season. The birds will not be nesting or holding territories during the project construction period. Permanent effects of the project on the landscape are not expected to rise to the level of take of the least Bell's vireo when breeding season does occur.

Project Description

The proposed project will occur on two sites: (1) the Enns Project site (West Project Site), and (2) the Onyx Ranch site (East Project Site). The West Project Site is located in the District service area, west of the City of Bakersfield. The East Project Site is located on the Onyx ranch, a property owned by the District upstream of the service area on the Kern River near the town of Weldon. Pursuant to 50 CFR 402.12(j), Reclamation submitted supporting documentation for informal consultation, including biological survey results prepared by McCormick Biological Inc., for our review and requested concurrence with the findings presented therein. Our concurrence with NLAA for the proposed project is based on recent surveys for federally-listed species and little to no suitable habitat(s) at the in the West Project Site; the small area of permanent and temporary impacts; and environmental commitments in the Initiation Memos and enclosures.

West Project Site

The proposed project at the West Project Site involves installing a geomembrane-liner on a 1-mile section of the West Intake Canal that is dirt-lined. The liner would be keyed into the canal bank, which would involve ground disturbance. In addition, variable frequency drive units (VFDs) will be installed on three wells on the West Project Site.

Work on the West Intake Canal would involve excavating soil, stockpiling soil, compacting the bank and bed with a roller arm on an excavator or a compactor, laying down the poly liner on the bed and banks of the canal, and reapplying the soil on the maintenance road on the part of the poly liner keyed into the maintenance road with an excavator and compactor.

Work to install the VFD units at each location would involve excavating less than a cubic yard of soils that would be stockpiled adjacent to each VFD, installing an above-ground or below-ground conduit for the utility hookup to the existing well system and power source, construction of a wooden form, pouring of concrete in the form, and removing the wooden form once the concrete has cured. The ground will be leveled by hand and either a ready mix concrete truck will deliver the concrete material or it will be prepared and poured onsite by the District staff using a portable mixing unit. Work trucks carrying the equipment and materials for each VFD unit installation, will travel on existing dirt roads to each site.

Work on the West Project Site is expected to take less than 60 days to complete.

East Project Site

The proposed project at the East Project Site, on Onyx Ranch near Audubon California's Kern River Preserve, involves installation of a meter and flow control retrofits on nine water control structures, installation of a VFD unit on the Mack Pumping Plant, and installation of solar well pumping units on existing pumps.

Work in the East Project Site will involve overland travel by truck, minor non-woody vegetation clearing around wells, installation of meter equipment, electrical conduits, and protective metal fencing. All of the work to prepare each site will be done by hand with materials imported to the site by truck. Work at the East Project Site is expected to last up to 60 days to complete and would occur prior to March 31, 2016.

The 2014 WaterSmart grant proposal noted water conservation benefits could be realized by installing VFDs and/or acoustic doppler flow devices/sluice gates at a number of diversion structures on the East Project Site (Onyx Ranch). For the water conservation features identified at the Onyx Ranch, the grant proposal describes system over-diversion and spillage that could be reduced by 2,000 AFY, and unnecessary pumping and over-diversion and spillage at the Mack Pumping Plant could be reduced by an average of 600 AFY, for a total anticipated water savings of 2,600 AFY. The grant proposal mentions that implementation of water conservation features funded by the WaterSmart Grant will minimize the amount of water entering Gibbony Meadows and pond (downstream of Landers Ditch Head) and Mack Meadow (downstream of Scodie and Mack Ditches). Both Gibbony Meadows and pond and Mack Meadow are within the boundary of designated critical habitat for the southwestern willow flycatcher. Based on a conversation that Reclamation had with the District the effects of the project on critical habitat for the southwest willow flycatcher are described below. Reclamation provided this additional information via e-mail to the Service on December 14, 2015.

Landers Ditch – The Landers Ditch provides water to the Landers Fields on the north side of the South Fork and terminates in Gibbony Meadows. Gibbony Meadows is within designated critical habitat for the southwestern willow flycatcher, yet contains very limited woody riparian vegetation. It is maintained as a wet meadow for cattle grazing.

The proposed project action is to put a new sluice gate with an acoustic/Doppler meter at the head of Landers Ditch to measure flows into the ditch. Currently, water is diverted to the ditch in excess of what is actually needed, and the excess water is returned to the South Fork via a flashboard structure at the head of the ditch. The proposed project is not designed to change the amount of water in Landers Ditch or in Gibbony Meadows, rather the intent is to reduce the amount of diverted water that is subsequently spilled back into the South Fork at the head of Landers Ditch. The Landers Ditch structure is proposed within designated critical habitat, yet it is not likely to adversely modify the critical habitat. It will be retrofitted within the existing structure. It will also allow more water to remain in the natural South Fork flow, rather than being temporarily diverted.

Mack Pumping Plant – The Mack Pumping Plant pumps water from the South Fork to the Scodie and Mack Ditches on the south side of State Highway 178. Like the Landers Ditch, these ditches terminate at meadows used for cattle grazing that are within designated critical habitat for the flycatcher. As with Gibbony Meadows, there is a limited amount of woody vegetation on these meadows as well.

The proposed project action is to retrofit the one of the two current pumps at the plant with a new variable frequency drive unit. Doing so would allow pump operators to better match the amount of water being pumped with the amount that is needed in the ditches. Like at the head of the Landers Ditch, excess pumped water is returned to the South Fork before it flows through the ditches. The Mack Pumping Plant is not within critical habitat. Retrofitting one of the two existing pumps with a VFD will not alter the designed water levels in the ditches or the amount of water in them. It will

also have no effect on the amount of water spilled at the tail ends of the ditches into the meadows within designated critical habitat.

Environmental Commitments

As part of the proposed project, the District's staff and contractors will adhere to the Environmental commitments prior to and during construction activities:

1. Within thirty days prior to ground disturbance activities, a qualified biologist will complete a pre-activity survey to assess site conditions. This will include efforts to identify kit fox and kangaroo rat activity.
2. The District will follow the Service's Standardized Recommendations for protection of the Endangered San Joaquin kit fox prior to or during ground disturbance.¹
3. Firearms and pets will be prohibited from project sites.
4. All food-related trash such as wrappers, cans, bottles, and food scraps should be disposed of in close containers and regularly removed from the project site. No deliberate feeding of wildlife is allowed.
5. Appropriate erosion control methods should be implemented such that no sediment is deposited from the project site into adjacent lands or waterways.
6. Work at the East Project Site will be limited to the non-breeding season (September 1 through March 31) for the southwestern willow flycatcher and yellow-billed cuckoo.

Conclusion

Our concurrence with Reclamation's effects determinations of NLAA for the proposed project for San Joaquin kit fox, Tipton kangaroo rat, southwestern willow flycatcher, and yellow-billed cuckoo and critical habitat concludes this consultation. Our concurrence with NLAA for the proposed project is based on recent surveys for federally-listed species and little to no suitable habitat(s) at the West Project Site; the small area of permanent and temporary impacts; and environmental commitments in the Initiation Memos and enclosures. If the preconstruction surveys establish presence or signs of federally-listed species in any of the project locations, the proposed project would have additional effects to species beyond those considered in this consultation. Those additional effects could constitute take and would necessitate reinitiation of section 7 consultation for this action. Therefore, unless new information reveals effects of the proposed project that may affect listed species in a manner or to an extent not considered, or a new species or critical habitat is designated that may be affected by the proposed project, no further action pursuant to the Act is necessary. If you have questions regarding this action, please contact Thomas Leeman at (916) 414-6600.

¹ See: http://www.fws.gov/sacramento/es/Survey-Protocols-Guidelines/Documents/kitfox_standard_rec_2011.pdf

Appendix C: Cultural Resources



IN REPLY REFER TO:

United States Department of the Interior

BUREAU OF RECLAMATION
Mid-Pacific Regional Office
2800 Cottage Way
Sacramento, CA 95825-1898

NOV 17 2015

MP-153
ENV-3.00

CERTIFIED – RETURN RECEIPT REQUESTED

Dr. Julianne Polanco
State Historic Preservation Officer
Office of Historic Preservation
1725 23rd Street, Suite 100
Sacramento, CA 95816

Subject: National Historic Preservation Act (NHPA) Section 106 Consultation for the Proposed
Rosedale-Rio Bravo Water Storage District (RRBWSD) Water Conservation, Energy
Efficiency, and Solar Power Project, Kern County, California
(Project Number: 14-MPRO-240)

Dear Ms. Polanco:

The Bureau of Reclamation is initiating consultation under Title 54 USC § 306108, commonly known as Section 106 of the NHPA, and its implementing regulations found at 36 CFR Part 800, for the subject project located near the town of Bakersfield in Kern County, California (Appendix A: Figure 1 in the enclosed report). Reclamation proposes to provide funding through a WaterSMART Grant to RRBWSD for the improvement of existing conveyance features owned by RRBWSD. Reclamation determined that providing Federal funding to RRBWSD is an undertaking as defined in 36 CFR § 800.16(y) and a type of activity that has the potential to cause effects on historic properties under 36 CFR § 800.3(a). We are entering into consultation with you on this undertaking and notifying you of a finding of no historic properties affected.

Activities associated with the implementation of the proposed project are described in Section 1.1 of the enclosed report (ASM 2015: 2-3). These activities involve lining a one mile portion of the West Intake Canal; installing meter and flow retrofits on four existing control structures/gates (one on each of the Landers, Nicoll, Miller, and Prince irrigation ditches); retrofitting three existing wells and one existing pumping plant with variable frequency drives (VFD); and installing three solar powered pumping units in old inactive irrigation/monitoring wells on Onyx Ranch.

Reclamation has determined the discontinuous area of potential effects (APE) for this undertaking includes a 31-acre area that includes all construction activities, staging, and access

to both the western (West Intake Canal and VFD Retrofits) and eastern (Onyx Ranch Retrofits and Mack Pumping Plant VFD Retrofit) project locations. The vertical APE in the western project location will not exceed 3 feet, while in the eastern APE, it will not exceed 5 feet below existing ground surface. The APE is located in Sections 7, 12, 13, and 18, T. 26 S., R. 34 E.; Sections 4, 5, 7, 8, 9, and 18, T. 26 S., R. 35 E.; and Sections 34 and 35, T. 29 S., R. 25 E., Mount Diablo Baseline and Meridian, as depicted on the Weldon, Onyx, and Tupman 7.5 minute U.S. Geological Survey topographic quadrangle maps (Appendix A: Figures 1a-1c in the enclosed report). The entire APE is confined to the built environment and only includes modifications to existing canals, control structures, and wells.

In an effort to identify historic properties in the APE, Reclamation coordinated with RRBWSD, who contracted ASM Affiliates to conduct a records search, background research, a cultural resources pedestrian survey, inventory, and evaluation for the proposed project (report enclosed). The West Intake Canal and four ditches (Landers, Nicoll, Miller, and Prince ditches) are the only identified cultural resources within the APE. Based on the background research, the development of a historic context, field recordation, and application of the National Register of Historic Places (National Register) criteria, ASM Affiliates recommended that none of the identified cultural resources are eligible for inclusion in the National Register. Reclamation agrees with this determination.

Reclamation did not consult with federally recognized Indian tribes to identify historic properties pursuant to the regulations at 36 CFR § 800.3(f)(2) and 36 CFR § 800.4(a)(4) because all proposed activities will be conducted entirely within the constraints of the built environment where there exists very little potential to encounter sites of religious and cultural significance. Visual impacts from the proposed project will be very minimal due to the placement of equipment within existing structures.

Since no historic properties are present in the APE, Reclamation finds no historic properties affected by the proposed undertaking, pursuant to 36 CFR § 800.4(d)(1). We invite your comments on the delineation of the APE and our efforts to identify historic properties. We also request your concurrence on the ineligibility of the cultural resources identified during inventory efforts as detailed in the enclosed report. Reclamation is notifying you of our finding of no historic properties affected by the proposed undertaking. If you have any questions or concerns about this project, please contact Ms. BranDee Bruce, Architectural Historian, at 916-978-5039, or bbruce@usbr.gov.

Sincerely,

ANASTASIA T. LEIGH

Anastasia T. Leigh
Regional Environmental Officer

Enclosure – 1

**OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION**

1725 23rd Street, Suite 100
SACRAMENTO, CA 95816-7100
(916) 445-7000 Fax: (916) 445-7053
calshpo@parks.ca.gov
www.ohp.parks.ca.gov



December 18, 2015

Reply in Reference To: BUR_2015_1123_004

Anastasia T. Leigh
Regional Environmental Officer
United States Department of the Interior
Bureau of Reclamation
Mid-Pacific Regional Office
2800 Cottage Way
Sacramento, CA 95825-1898

Re: National Historic Preservation Act (NHPA) Section 106 Consultation for the Proposed
Rosedale-Rio Bravo Water Storage District (RRBWSD) Water Conservation, Energy Efficiency,
and Solar Power Project, Kern County, California (Project Number: 14-MPRO-240)

Dear Ms. Leigh:

Thank you for your November 17, 2015 letter initiating consultation with the State Historic Preservation Officer (SHPO) for the above referenced undertaking. The Bureau of Reclamation (Reclamation) is consulting with the SHPO to comply with Section 106 of the National Historic Preservation Act of 1966 (16 U.S.C. 470f), as amended, and its implementing regulations 36 CFR 800. Your letter requests SHPO concurrence on Reclamation's determination of eligibility (36 CFR §800.4(c)(2)) and also notifies the SHPO on Reclamation's finding of no historic properties affected (36 CFR §800.4(d)(1)).

Reclamation proposes to provide funding through a WaterSMART Grant to Rosedale-Rio Bravo Water Storage District (RRBWSD) for the improvement of existing conveyance features owned by RRBWSD located near the town of Bakersfield in Kern County. Activities associated with the implementation of the proposed undertaking are described in Section 1.1 of the *Class III Inventory/Phase I Survey, Rosedale-Rio Bravo Water Storage District, 2014 WaterSMART Project, Kern County, California* (Whitley et al 2015) report submitted with your letter. Reclamation has determined the discontinuous area of potential effects (APE) to include a 31-acre area that encompasses all construction activities, staging, and access to both the western (West Intake Canal and variable frequency drives (VFD) Retrofits) and eastern (Onyx Ranch Retrofits and Mack Pumping Plant VFD Retrofit) undertaking locations. The vertical APE in the western undertaking location will not exceed 3 feet and the vertical APE will not exceed 5 feet in the eastern undertaking location. The discontinuous APE is depicted in Appendix A: Figures 1a-1c in Whitley et al 2015. The entire APE is confined to the built environment and only includes modifications to existing canals, control structures, and wells. I find the Reclamation's determination and documentation of the APE to be sufficient (36 CFR §800.4(a)(1)).

Efforts to identify historic properties within the APE (36 CFR §800.4(b)(1)) were conducted by cultural staff with ASM Affiliates. These efforts are detailed in Whitley et al 2015 and consisted of a record search, background research, geoarchaeological analysis, and a cultural resource survey of the entire APE. Identification efforts resulted in the documentation of five cultural

Ms. Leigh
December 18, 2015

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resources: the Landers Ditch and Control Structure, the Nicoll Ditch and Control Structure, the Miller Ditch, the Prince Ditch and Control Structure, and the West Intake Canal.

I find the Reclamation's level of effort in identifying historic properties within the APE to be reasonable (36 CFR §800.4(b)(1)).

Reclamation has determined that the Landers Ditch and Control Structure, the Nicoll Ditch and Control Structure, the Miller Ditch, the Prince Ditch and Control Structure, and the West Intake Canal are not eligible for listing on the NRHP under Criteria A, B, C and/or D. Based on my review of the submitted documentation, I concur.

Based on Reclamation's level of effort, they have determined a finding of no historic properties affected as a result of this undertaking (36 CFR §800.4(d)(1)). I do not object to your finding.

Thank you for seeking my comments and considering historic properties as part of your undertaking. Please be advised that under certain circumstances, such as post-review discoveries or a change in the undertaking description, you may have future responsibilities for this undertaking under 36 CFR Part 800. If you require further information, please contact Alicia Perez at 916-445-7020 or at Alicia.Perez@parks.ca.gov or Kathleen Forrest at 916-445-7022 or at Kathleen.Forrest@parks.ca.gov.

Sincerely,

A handwritten signature in blue ink, appearing to be 'J. Polanco', with a long horizontal line extending to the right.

Julianne Polanco
State Historic Preservation Officer

CULTURAL RESOURCES COMPLIANCE

Division of Environmental Affairs

Cultural Resources Branch (MP-153)

MP-153 Tracking Number: 14-MPRO-240

Project Name: National Historic Preservation Act Compliance for the Rosedale-Rio Bravo Water Storage District (RRBWSD) Water Conservation, Energy Efficiency, and Solar Project, Kern County, California.

NEPA Contact: Harry Kahler, Natural Resource Specialist

MP 153 Cultural Resources Reviewer: BranDee Bruce, Architectural Historian

Date: December 18, 2015

Reclamation proposes to provide federal funding through a WaterSMART grant to RRBWSD for an improvement project involving existing conveyance features owned by RRBWSD. Improvements include lining a portion of an existing canal, retrofitting flow meters on existing control structures/gates, retrofitting existing wells and pumping plant with variable frequency drives, and installing three solar powered pumping units in existing monitoring weeks. 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 RRBWSD's cultural resources contractor ASM Affiliates, five cultural resources were identified within the area of potential effects. ASM Affiliates surveyed and recorded these five cultural resources: Landers Ditch and Control Structure; the Nicoll Ditch and Control Structure; the Miller Ditch; the Prince Ditch and Control Structure; and the West Intake Canal. Each of these properties was evaluated as ineligible for listing on the National Register of Historic Places (National Register). For this current undertaking, a finding of no historic properties affected pursuant to 36 CFR §800.4(d)(1) was determined.

Reclamation provided a consultation package to California State Historic Preservation Officer (SHPO) on November 23, 2015 (letter is dated November 17, 2015), concerning the proposed undertaking and notification of a finding of no historic properties affected. Through correspondence dated December 18, 2015, SHPO responded with a concurrence on the ineligibility of the cultural resources identified in the area of potential effects and with no objection to Reclamation's finding. With receipt of SHPO concurrence, Reclamation's responsibilities for Section 106 compliance are fulfilled.

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. This document serves as notification that Section 106 compliance has been completed for this undertaking. 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 November 17, 2015

Letter: SHPO to Reclamation dated December 18, 2015 (BUR_2015_1123_004)