

RECLAMATION

Managing Water in the West

FINDING OF NO SIGNIFICANT IMPACT

Los Banos Creek Diversion Project

FONSI-12-060



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

February 2015

Mission Statements

The mission of the Department of the Interior is to protect and manage the Nation's natural resources and cultural heritage; provide scientific and other information about those resources; and honor its trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated island communities.

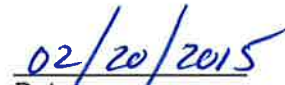
The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.


BUREAU OF RECLAMATION
South-Central California Area Office, Fresno, California

FONSI-12-060

Los Banos Creek Diversion Project

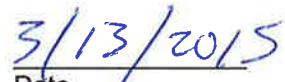

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Date

Introduction

In accordance with section 102(2)(c) of the National Environmental Policy Act of 1969, as amended, the South-Central California Area Office of the Bureau of Reclamation (Reclamation) has determined that the proposed installation of infrastructure in Los Banos Creek and the Delta-Mendota Canal (DMC) for temporary diversion of flood water released from Los Banos Creek Detention Dam for beneficial use on riparian lands in Central California Irrigation District (Central California ID), Grasslands Water District (Grasslands WD), and San Luis Water District (San Luis WD) will not significantly affect the quality of the human environment and an environmental impact statement is not required. This Finding of No Significant Impact (FONSI) is supported by Reclamation's Environmental Assessment (EA)-12-060, *Los Banos Creek Diversion Project*, and is hereby incorporated by reference.

Reclamation provided the public with an opportunity to comment on the Draft FONSI and Draft EA between November 21, 2014 and December 22, 2014. No comments were received.

Background

Los Banos Creek is an intermittent creek that begins in the Diablo Range in San Benito County and flows north then eastward into western Merced County where it is dammed at the Los Banos Detention Dam. The dam was built by Reclamation in 1966 to detain floodwater from Los Banos Creek in the Los Banos Creek Detention Reservoir in order to protect the San Luis Canal, the DMC, the City of Los Banos, and adjacent areas from damaging floods. As a flood control facility, the dam is subject to operation criteria of the United States Army Corps of Engineers (Corps). Otherwise, Los Banos Detention Dam is operated in accordance with License 12134 from the State Water Resources Control Board. The license is held by Reclamation, and subject to agreements with multiple agencies. The license allows for storage from November 1 to April 30 of up to 14,000 acre-feet (AF) annually for recreation, incidental domestic, fish culture and fish and wildlife maintenance within the vicinity of the reservoir. The license is subject to the downstream appropriative right under License 5271, the memorandum of agreement with the California Department of Fish and Wildlife (DFW) to deliver up to 4,000 AF annually to wetlands in Merced County, and a protest dismissal agreement with Grasslands WD. The reservoir, with a capacity of 34,000 AF, is a joint-use facility owned in title by Reclamation and operated and maintained by the California Department of Water Resources. As part of its operations, flood control releases from the reservoir are made according to flood control criteria specified by the Corps between September 20th and March 15th

(see Section 3.2 of EA-12-060 for a description of Los Banos Creek Detention Reservoir operations).

Central California ID, Grasslands WD and San Luis WD historically have delivered surface water from the Central Valley Project (CVP) and Los Banos Creek to lands shown in Figure 1 in EA-12-060 that are riparian to Los Banos Creek. Water delivered is used for crop production as well as maintenance of wetlands, waterfowl habitat, and vegetation growth. The delivery of surface water to these riparian lands benefits wildlife and reduces groundwater extraction by riparian landowners. A substantial portion of these lands are not fully able to use the intermittent high flows released into Los Banos Creek during flood control operations of Los Banos Creek Detention Dam because there are no pumps or diversion facilities sized for proper management of these types of flows which may last only several days. To increase pumping capacity or diversion capacity during these events would require installation of dozens of separate pumps as well as the extension and maintenance of miles of electric service lines to meet new electric generation demands. Additionally, in the 1960's, weir structures located in Central California ID's Main Canal and Outside Canals that had previously intercepted flows from Los Banos Creek for conveyance to the riparian lands in Central California ID and Grasslands WD were replaced with siphons which pass under the creek and have since been unable to capture flows in Los Banos Creek.

Proposed Action

Reclamation proposes to issue a series of Warren Act contracts to Central California ID, Grasslands WD, and/or San Luis WD for introduction of Los Banos Creek water during flood conditions into the DMC. Reclamation also proposes to issue a 50-year land use authorization to Central California ID for installation, operation, and maintenance of a connection structure and creek control structure within Reclamation right-of-way near Check 15 of the DMC as described in Section 2.2 in EA-12-060.

Environmental Commitments

Central California ID, Grasslands WD, and San Luis WD must implement the environmental protection measures included in Appendix C of EA-12-060 to reduce potential environmental consequences associated with the Proposed Action. Environmental consequences for resource areas assume the measures specified would be fully implemented.

Findings

Reclamation's finding that implementation of the Proposed Action will result in no significant impact to the quality of the human environment is supported by the following findings:

Resources Eliminated from Detailed Analysis

As described in Section 3.1 of EA-12-060, Reclamation analyzed the affected environment and determined that the Proposed Action does not have the potential to cause direct, indirect, or cumulative adverse effects to the following resources: Indian Sacred Sites, Indian Trust Assets, socioeconomic resources, or environmental justice populations.

Water Resources

On an average annual basis approximately 6,500 AF of Los Banos Creek flood flows would be available for irrigation and waterfowl habitat supply within the riparian lands shown in Figure 1 of EA-12-060. Approximately 340 AF of this water would also be available for additional direct recharge as shown in Appendix D of EA-12-060. With the availability of this water, CVP water that would have been delivered to the riparian lands would instead be available for distribution to other landowners within Central California ID, Grasslands WD, and San Luis WD; providing additional water supply reliability for landowners within the districts. Slight beneficial effects to groundwater levels is expected to occur as a result of prolonged lower flow releases of the non-CVP water from the DMC to Los Banos Creek in conjunction with reduced groundwater pumping from in-lieu recharge. In addition, ponds within Grasslands WD would not need to be emptied of previously delivered water in order to accommodate the additional flood flows from Los Banos Creek, resulting in less flooding of farmlands and habitat.

Introduction and conveyance of non-CVP water is dependent on available capacity and operational constraints; therefore, the Proposed Action would not interfere with the normal operations of Federal facilities nor would it impede any CVP obligations to deliver water to other contractors or to local fish and wildlife habitat.

All waters introduced and conveyed within Federal facilities must meet Reclamation's water quality standards. If, through monitoring, the non-CVP water fails to meet the criteria for introduction into Federal facilities, the water would not be introduced until subsequent testing has demonstrated that the water quality meets the criteria as outlined in Reclamation's then current water quality standards. With these requirements, in addition to the water quality environmental protection measures included in Appendix C of EA-12-060, there would be no significant adverse impacts to water quality as a result of the Proposed Action.

Biological Resources

As described in Section 3.3 of EA-12-060, the only special-status species that potentially could be affected by the Proposed Action area includes the western burrowing owl, giant garter snake, Swainson's hawk, and San Joaquin kit fox. No critical habitat would be affected as there is none within the Action Area.

Based on the discussion in Section 3.3 and the incorporation of environmental protection measures included in Appendix C of EA-12-060, Reclamation has

determined that the effects of the Proposed Action on the giant garter snake (during construction), San Joaquin kit fox, Swainson's hawk, western burrowing owl, and other migratory birds would be very minor and are not likely to be adverse. In addition, long-term effects on the giant garter snake and waterfowl and shorebirds may be beneficial.

Reclamation sent an informal consultation request to the U.S. Fish and Wildlife Service (Service) under section 7 of the Endangered Species Act on December 11, 2014. On February 20, 2015, Reclamation received a memorandum from the Service concurring with Reclamation that effects of the Proposed Action may affect, but are not likely to adversely affect the San Joaquin kit fox or the giant garter snake (see Appendix I of EA-12-060).

Reclamation consulted with the Service pursuant to the Fish and Wildlife Coordination Act. A draft Coordination Act Report was received on September 11, 2014 and included as part of the draft EA. Reclamation submitted clarification comments to the Service on September 16, 2014. The Service agreed with our comments in their response on September 18, 2014. The draft Coordination Act Report has been included as Appendix H of EA-12-060. The emailed comments and the response by the Service are in Reclamation's files. The Service subsequently determined that they did not need to prepare a final Coordination Act Report.

Cultural Resources

Reclamation has determined that the Proposed Action will have no adverse effects to historic properties under 36 CFR § 800.5(b). The State Historic Preservation Officer concurred with Reclamation's determination on October 10, 2014 (see Appendix F of EA-12-060).

Air Quality

There would be no air quality impacts due to the introduction of Los Banos Creek water to the DMC as introduction, and subsequent deliveries, would be done via gravity flow. However, construction activities would cause temporary impacts to air quality due to dust and exhaust emissions. As shown in Table 6 of EA-12-060, calculated unmitigated annual emissions for construction and operations are each well below the *de minimus* thresholds for the San Joaquin Valley Air Pollution Control District. In addition, environmental protection measures have been incorporated into the Proposed Action in order to further minimize emissions from construction activities (see Appendix C of EA-12-060). Consequently, the Proposed Action would not result in a significant impact upon air quality and a conformity analysis pursuant to the Clean Air Act is not required.

Global Climate

As shown in Table 6 of EA-12-060, annual construction and operational emissions of carbon dioxide equivalents are estimated to be 1,001 metric tons, well less than the Environmental Protection Agency's 25,000 metric tons per year threshold for annually reporting greenhouse gas emissions. Accordingly, the

Proposed Action would result in below *de minimis* impacts to global climate change.

Cumulative Impacts

Cumulative impacts result from incremental impacts of the Proposed Action or No Action alternative when added to other past, present, and reasonably foreseeable future actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. To determine whether cumulatively significant impacts are anticipated from the Proposed Action or the No Action alternative, the incremental effect of both alternatives were examined together with impacts from past, present, and reasonably foreseeable future actions in the same geographic area.

Water Resources

Reclamation has reviewed existing or foreseeable projects in the same geographic area that could affect or could be affected by the Proposed Action as Reclamation and CVP contractors have been working on various drought-related projects, including this one, in order to better manage and augment limited water supplies due to current hydrologic conditions and regulatory requirements. This and similar projects would have a cumulative beneficial effect on water supply during this critically dry year.

As in the past, hydrological conditions and other factors are likely to result in fluctuating water supplies which drive requests for water service actions. Water districts provide water to their customers based on customers' demands and available water supplies and timing, while attempting to minimize costs. Farmers irrigate and grow crops based on these conditions and factors, and a myriad of water service actions are approved and executed each year to facilitate water needs. It is likely that during the drought, more districts will request exchanges, transfers, and Warren Act contracts (conveyance of non-CVP water in CVP facilities) due to hydrologic conditions and regulatory actions affecting water supplies. Each water service transaction involving Reclamation undergoes environmental review prior to approval.

The Proposed Action and other similar projects would not hinder the normal operations of the CVP and Reclamation's obligation to deliver water to its contractors or to local fish and wildlife habitat.

Capacity in the DMC is limited, and if many water actions were scheduled to take place concurrently they could cumulatively compete for capacity. However, non-CVP water would only be allowed to enter the DMC for conveyance through Federal facilities if excess capacity is available. As such, the Proposed Action would not limit the ability of other users to make use of the facilities.

As non-CVP water is required to meet Reclamation's water quality standards prior to introduction, no cumulative adverse water quality impacts are expected.

Biological Resources

Cumulative impacts include past losses of habitat in the area due to creek channelization, alteration of natural creek flows by dam construction, losses due to conversion of natural habitat to agricultural uses, and habitat losses and fragmentation because of road construction, and introduction of invasive species. Ongoing impacts include pesticide and herbicide use on crops, routine canal maintenance which may include rodent control, ground disturbance associated with routing farming activity, illegal dumping in the bed of Los Banos Creek, and beneficial wetland management activities at the Volta Wildlife Area. These ongoing impacts are expected to continue in the future. However, as a result of the small footprint of the construction areas, the poor quality of habitat at those locations, and the measures that would be implemented to protect special-status species, the Proposed Action will have very little cumulative contribution toward impacts to biological resources.

Cultural Resources

The Proposed Action would not substantially contribute to any cumulative impacts to historic properties or cultural resources.

Air Quality

Construction, operation and maintenance emissions for the Proposed Action are well below the *de minimis* thresholds established by the San Joaquin Valley Air Pollution Control District and are expected to be temporary in duration. As a result, the Proposed Action is not expected to contribute to cumulative adverse impacts to air quality.

Global Climate

Greenhouse gas emissions generated by the Proposed Action are expected to be extremely small, as seen in Table 6 of EA-12-060. While any increase in greenhouse gas emissions would add to the global inventory of gases that would contribute to global climate change, the Proposed Action would result in potentially minimal to no increases in greenhouse gas emissions and a net increase in greenhouse gas emissions among the pool of greenhouse gas would not be detectable.

RECLAMATION

Managing Water in the West

Final Environmental Assessment

Los Banos Creek Diversion Project

EA-12-060



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

February 2015

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Section 1 Introduction

The Bureau of Reclamation (Reclamation) provided the public with an opportunity to comment on the Draft Finding of No Significant Impact (FONSI) and Draft Environmental Assessment (EA) between November 21, 2014 and December 22, 2014. No comments were received. Changes between this Final EA and the Draft EA, which are not minor editorial changes, are indicated by vertical lines in the left margin of this document.

1.1 Background

The State of California is currently experiencing unprecedented water management challenges due to severe drought in recent years. Both the State and Federal water projects are forecasting very low storage conditions in all major reservoirs. In addition, South-of-Delta (SOD) Central Valley Project (CVP) contractors experienced reduced water supply allocations from 2007 to 2014 due to hydrologic conditions and regulatory requirements. As a result, SOD water contractors have a need to find alternative sources of water to fulfill demands.

The San Joaquin River Exchange Contractors Water Authority has been working with several partners including Grassland Water District (Grasslands WD), San Luis Water District (San Luis WD) and the City of Los Banos to develop a project to introduce and convey a portion of Los Banos Creek water in the Delta-Mendota Canal (DMC) for delivery to lands riparian to Los Banos Creek located within Central California Irrigation District (Central California ID), Grasslands WD, and San Luis WD (Figure 1).

Los Banos Creek

Los Banos Creek is an intermittent creek that begins in the Diablo Range in San Benito County and flows north then eastward into western Merced County where it is dammed at the Los Banos Detention Dam (Figure 1). The dam was built by the Bureau of Reclamation (Reclamation) in 1966 to detain floodwater from Los Banos Creek in the Los Banos Creek Detention Reservoir in order to protect the San Luis Canal, the DMC, the City of Los Banos, and adjacent areas from damaging floods. As a flood control facility, the dam is subject to operation criteria of the United States Army Corps of Engineers (Corps). Otherwise, Los Banos Detention Dam is operated in accordance with License 12134 from the State Water Resources Control Board. The license is held by Reclamation, and subject to agreements with multiple agencies. The license allows for storage from November 1 to April 30 of up to 14,000 acre-feet (AF) annually for recreation, incidental domestic, fish culture and fish and wildlife maintenance within the vicinity of the reservoir. The license is subject to the downstream appropriative right under License 5271, the memorandum of agreement with the California

Department of Fish and Wildlife (DFW) to deliver up to 4,000 AF annually to wetlands in Merced County, and a protest dismissal agreement with Grasslands WD. The reservoir, with a capacity of 34,000 AF, is a joint-use facility owned in title by Reclamation and operated and maintained by the California Department of Water Resources (DWR). As part of its operations, flood control releases from the reservoir are made according to flood control criteria specified by the Corps between September 20th and March 15th (see Section 3.2 for a description of Los Banos Creek Detention Reservoir operations).

Central California ID, Grasslands WD and San Luis WD historically have delivered surface water from the CVP and Los Banos Creek to lands shown in Figure 1 that are riparian to Los Banos Creek. Water delivered is used for crop production as well as maintenance of wetlands, waterfowl habitat, and vegetation growth. The delivery of surface water to these riparian lands benefits wildlife and reduces groundwater extraction by riparian landowners. A substantial portion of these lands are not fully able to use the intermittent high flows released into Los Banos Creek during flood control operations of Los Banos Creek Detention Dam because there are no pumps or diversion facilities sized for proper management of these types of flows which may last only several days. To increase pumping capacity or diversion capacity during these events would require installation of dozens of separate pumps as well as the extension and maintenance of miles of electric service lines to meet new electric generation demands. Additionally, in the 1960's, weir structures located in Central California ID's Main Canal and Outside Canals that had previously intercepted flows from Los Banos Creek for conveyance to the riparian lands in Central California ID and Grasslands WD were replaced with siphons which pass under the creek and have since been unable to capture flows in Los Banos Creek.

1.2 Need for the Proposed Action

Central California ID, San Luis WD, and Grasslands WD need to find ways to manage reduced water supplies within their respective districts. The ability to maximize the use of riparian water from Los Banos Creek for the riparian lands within their districts (Figure 1) would free up the CVP supplies that would have gone to them for use in other portions of their districts.

The purpose of the Proposed Action is to install infrastructure in Los Banos Creek and the DMC in order to divert water released for flood protection from Los Banos Creek Detention Dam for beneficial use on riparian lands in Central California ID, Grasslands WD, and San Luis WD in order to free up a like amount of CVP water that would have otherwise gone to these lands for use in other areas of Central California ID, San Luis WD, and Grasslands WD.

Central California ID would also like to quantify storm flow and groundwater recharge within Los Banos Creek, consequently they propose to install stream

gauging stations in Los Banos Creek near the crossing of its Outside and Main Canals.

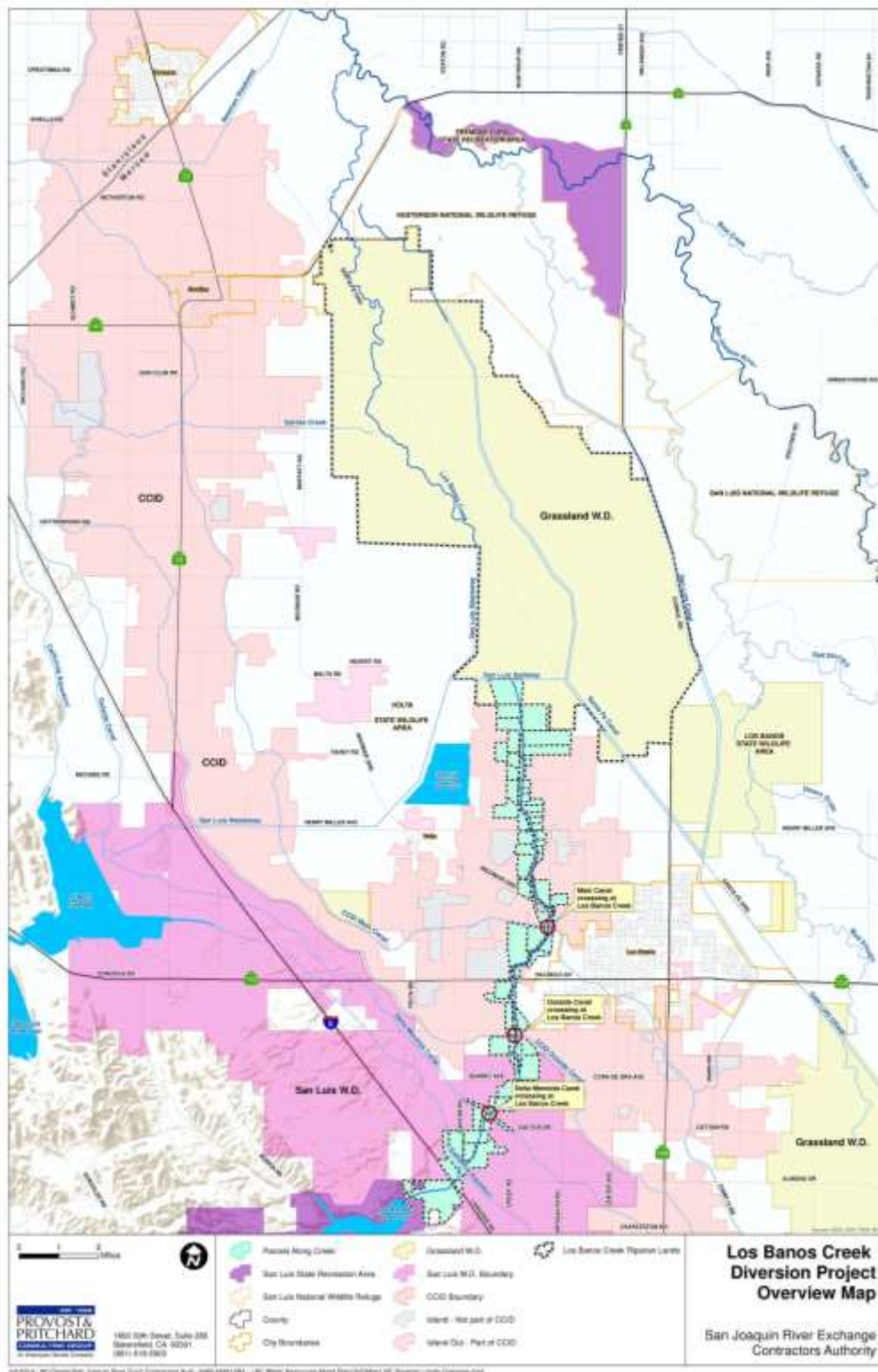


Figure 1 Proposed Action Area

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Section 2 Alternatives Including the Proposed Action

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

2.1 No Action Alternative

Under the No Action Alternative, Reclamation would not issue Warren Act contracts for introduction of Los Banos Creek water into the DMC nor would Reclamation issue land use authorization to Central California ID for construction activities within its right-of-way. Riparian landowners would continue to use whatever water they can from Los Banos Creek but would likely not be able to fully beneficially use all the water available to them from the creek. Additional water would continue to be provided by groundwater pumping and/or supplemental CVP water supplies delivered by Central California ID, Grasslands WD, and/or San Luis WD. Central California ID may decide to install the two Los Banos Creek stream gauging stations located outside of Reclamation right-of-way in order to gauge storm flow and groundwater recharge in the creek.

2.2 Proposed Action

Reclamation proposes to issue a series of Warren Act contracts to Central California ID, Grasslands WD, and/or San Luis WD for introduction of Los Banos Creek water into the DMC. Reclamation also proposes to issue a 50-year land use authorization to Central California ID for installation, operation, and maintenance of a connection structure and creek control structure within Reclamation right-of-way near Check 15 of the DMC (see Figure 2). In addition to Reclamation's Proposed Action, Central California ID proposes to install two additional stream gauging stations in Los Banos Creek to monitor storm flows and groundwater recharge associated with the Proposed Action (see Figures 3 and 4).

2.2.1 Warren Act Contract(s)

Dependent on available capacity and Reclamation approval, Central California ID, Grasslands WD, and/or San Luis WD would cumulatively introduce annually up to 31,000 AF of Los Banos Creek water into the DMC near Check 15 (see Figure 2). Warren Act contracts would be for varying lengths of time through February 29, 2064 (Contract Years 2013-2063). All introduced water would be subject to 5 percent conveyance losses and may only be used on the riparian lands

associated with Los Banos Creek in Central California ID, Grasslands WD North, and San Luis WD as shown in Figure 1. Delivery to the riparian lands must occur within 30 days of introduction. Any Los Banos Creek water not delivered to the riparian lands within the 30 days would be placed back into Los Banos Creek from the DMC near Check 15 or from existing Central California ID or Grasslands WD facilities for additional groundwater recharge as it is continued and conveyed into Grasslands WD through Los Banos Creek (see Figure 1).

2.2.2 Los Banos Creek – Delta-Mendota Canal Connection

The following would be installed by Central California ID in Los Banos Creek and near Check 15 of the DMC in order to introduce Los Banos Creek water into the DMC:

DMC/Los Banos Creek Connection Structure

The connection structure would consist of a 250 cubic-feet per second (cfs) reinforced concrete gravity flow inlet structure containing two pump bays in conjunction with a 10 foot wide by 6 foot high reinforced concrete box culvert. The culvert is shown on Figure 2. The inlet structure would include a galvanized steel trashrack and two, aluminum approximately 6 feet wide by 5 feet 6 inches high fabricated steel slide gates. The culvert would be utilized to convey water between the inlet structure in Los Banos Creek and the DMC. An acoustic Doppler meter would be used to measure flows in the box culvert. The connection structure slide gates would always be either fully open or fully closed. A stop log in the DMC side of the connection structure would only be used if the flap gate requires maintenance or removal to prevent back flow from the DMC when the creek is dry. Specific details on the structure are included in Table 1. Construction designs are included in Appendix A.

Table 1 Specifications of the DMC/Los Banos Creek Connection Structure

Design Capacity	250 cfs
Top of Structure (Deck)	174.0 feet
Structure Invert	164.6 feet
Target Upstream Water Level	172.3 feet
DMC Operating Water Level	170.9 feet +/-
Level Measurement	Staff Gauge
Flow Control	Manual Slide Gates
Trash racks	Yes
Inlet Bottom Width	41 feet
Box Culvert Bottom Width	10 feet
Box Culvert Height	6 feet
Flow Measurement	Doppler Meter
Power for Flow Measurements	Electrical at DMC Check 15

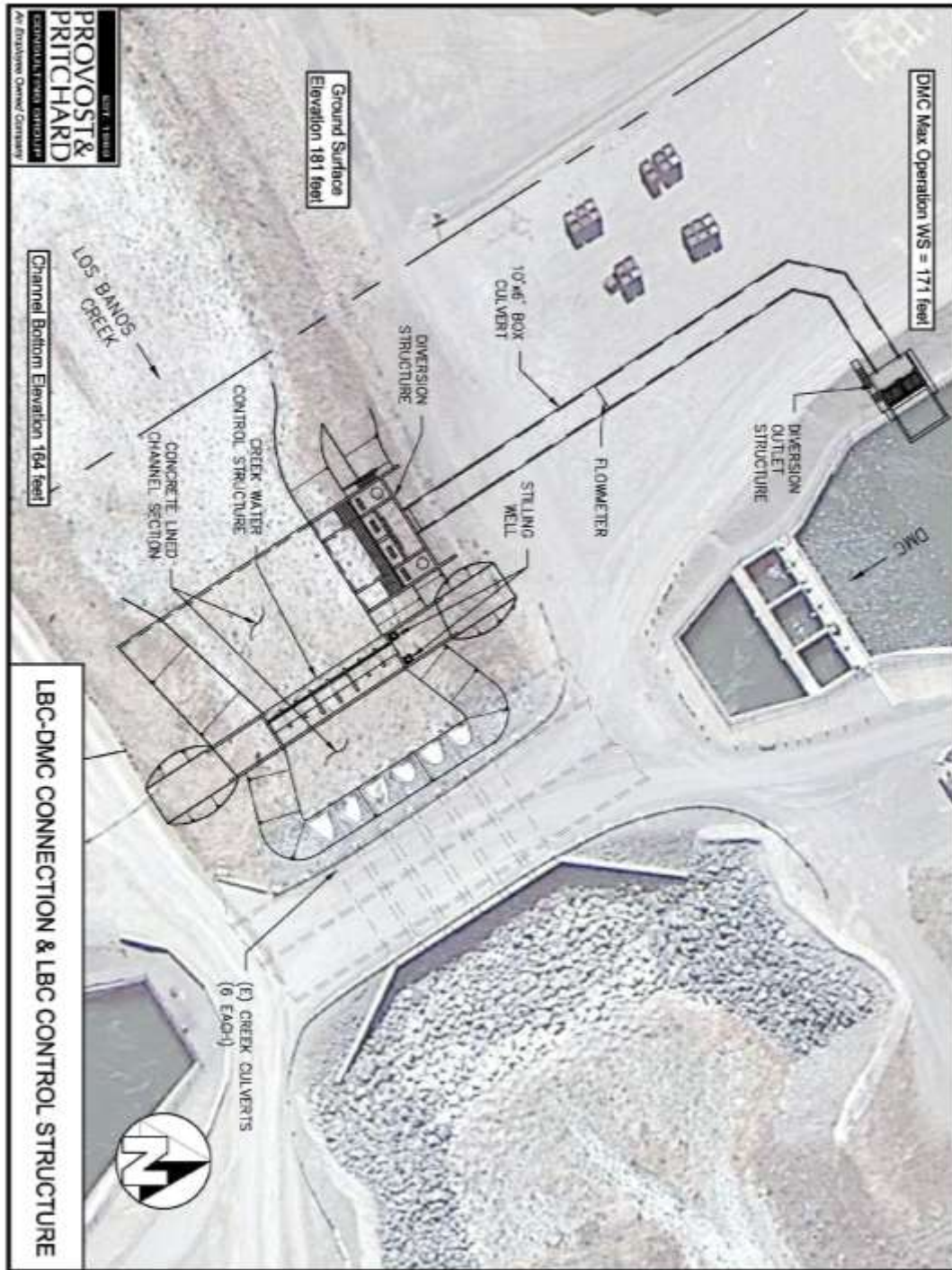


Figure 2 Los Banos Creek – DMC Connection

Los Banos Creek Control Structure

Construction within the Los Banos Creek streambed would consist of a check structure perpendicular to the stream, a turnout structure along the creek bank to deliver water to the DMC, and lining along the channel floor and side slopes (see Figure 2). Construction would be directly upstream of the DMC crossing. The check and turnout structures would be made of reinforced concrete and would

require steel rebar and temporary formwork. The check structure would require approximately 130 cubic yards of concrete. The turnout to the DMC would require approximately 170 cubic yards of concrete. The lining along the channel floor would require approximately 45 cubic yards of concrete (3,700 square feet at 4-inches thick). Concrete would be placed from trucks located on the bank of the creek. The bank of the creek would be excavated and then backfilled and compacted for installation of the box culvert. Approximately 38 cubic yards of reinforced concrete lining would be placed over roughly 2,000 square feet. Depth of concrete lining would be approximately 6 inches. Approximately 0.20 acres of channel disturbance would occur.

A pair of stilling wells with level sensors and data loggers would be installed upstream and downstream of the control structure to monitor the water level in the creek. The creek control structure would consist of a combination of slide gates and stop logs or flash boards to create a pond in the Los Banos Creek bed upstream of the DMC crossing. The creek control structure would raise the creek water surface elevation to approximately 172 feet. Immediately downstream of the proposed creek control structure is an extensive road crossing maintained by San Luis Delta-Mendota Water Authority. The creek control structure may be attached to the road crossing structure for stability purposes. The location, design and dimensions are shown on Figure 2. Specific details on the structure are included in Table 2. Construction designs are included in Appendix A.

Table 2 Specification of the Los Banos Creek Control Structure

Total Design Capacity	1,000 cfs
Gate Design Capacity	450 cfs
Top of Structure	177.5 feet
Structure Invert	165.0 feet
Target Upstream Water Level	172.3 feet
Level Measurement	Stilling Well & Logger
Flow Control	Manual Slide Gates
Structure Bottom Width	57 feet
Power Required	No

Proposed Operations of the Los Banos Creek Control Structure

The following is a general description of Central California ID's operation of the creek control structure. For specific operation details see Appendix B.

Weir stop logs would be installed in Los Banos Creek each winter in anticipation of storm flow releases from the Los Banos Creek Detention Reservoir. Communications between reservoir operators, Central California ID and the Water Authority would occur daily during rainfall events. In general, when possible, DWR provides 24 hour notice to San Luis Delta-Mendota Water Authority and Central California ID prior to initiating a release or making operational changes. The stop logs would be removed each year after the end of the rainy season. Up to 250 cfs would be diverted into the DMC via the proposed connection structure when flood waters are being released. The amounts actually

diverted would be dependent on demand and available capacity in the DMC. In order to match historic groundwater recharge in the area between the Los Banos Detention Dam and Central California ID's Main Canal crossing, a minimum of 50 cfs would be maintained in this portion of Los Banos Creek during diversion events.

The creek control structure gates would be manually operated to maintain a water surface elevation of approximately 172 feet in order to provide a constant flow into the DMC. The control structure would provide a regulated head of water so that the series of gates at the head of the diversion could be regulated and flow measured for diversion into the DMC and downstream in the Los Banos Creek channel. Central California ID would inspect and adjust gate openings to ensure sufficient flows occur downstream. During periods of higher flows the gates would also be operated to minimize flooding upstream of the structure. If creek flows are anticipated to exceed 450 cfs (up to 1,000 cfs), Central California ID would remove the stop logs by crane and fully open the slide gates to allow flood flows to continue down Los Banos Creek. If flash boards are used in lieu of stop logs, the boards would be removed manually. Although it is anticipated that Central California ID would receive notice in advance of high flows at the site, the control structure is designed to allow 1,000 cfs to pass through the gates and over the stop logs without overtopping the structure.

The majority of sediment in Los Banos Creek is captured behind the Los Banos Creek Detention Dam; however, in order to determine sediment loading in the creek, Central California ID would operate a station to measure turbidity below the dam. The creek control structure would be designed to collect sediment in and through the weir and sediment would be periodically removed by sluicing through the gates. Flows for sluicing would be controlled in order to maintain sediment flow in the creek in as close to a natural condition as possible. In addition, the weir elevation would be installed so as not to substantially raise water levels upstream in areas where quarrying activities may be impacted in Los Banos Creek above natural conditions or pre-existing operations of the Los Banos Creek Detention Dam.

2.2.3 Stream Gauging outside Reclamation's Right-of-Way

In order to monitor stream flow and groundwater recharge in Los Banos Creek, Central California ID would install stream gauging stations in Los Banos Creek near the crossing of its Outside and Main Canals. Construction designs are included in Appendix A.

Outside Canal

A stilling well for stream flow monitoring would be constructed approximately 25 feet downstream of the centerline of the Outside Canal crossing of Los Banos Creek (Figure 3). Work would consist of constructing a concrete stilling well in the Los Banos Creek bank set back approximately 2 feet from the top hinge point of the creek. The stilling well would be set in a reinforced concrete foundation approximately 2 feet below the creek invert elevation of 136.0 feet, along with a

24-inch Class III reinforced concrete stand pipe approximately 18.5 feet tall. A pressure transducer would be installed in the stand pipe and connected to a solar powered data logger with cellular modem to collect and transmit water level measurements. A 6-inch SDR-35 polyvinyl chloride (PVC) pipe would extend from the stand pipe into the creek with the invert of the 6-inch pipe matching the creek invert. The last 28 feet of pipe would be encased in concrete to protect the pipe. The concrete casing would be 2 feet wide and extend 1 foot above and 1 foot below the pipe. Excavation and fill would be less than 0.5 cubic yards within Waters of the U.S. The stilling well facilities would occupy approximately 78 square feet including facilities located within and outside of Waters of the U.S. Time for construction would be approximately 14 calendar days. The overall project footprint including the staging area is 0.14 acres with approximately 0.06 acres within "waters of the U.S".

Main Canal

A stilling well for stream flow monitoring would be constructed approximately 65 feet upstream of the centerline of the Main Canal crossing of Los Banos Creek (Figure 4). Work would consist of constructing a concrete stilling well in the Los Banos Creek bank set back approximately 2 feet from the top hinge point of the creek. The stilling well would be set in a reinforced concrete foundation approximately 2 feet below the creek invert elevation of 119.0 feet, along with a 24-inch Class III reinforced concrete stand pipe approximately 13 feet tall. A pressure transducer would be installed in the stand pipe and connected to a solar powered data logger with cellular modem to collect and transmit water level measurements. A 6-inch SDR-35 PVC pipe would extend from the stand pipe into the creek with the invert of the 6-inch pipe matching the creek invert. The last 6 feet of pipe would be encased in concrete to protect the pipe. The concrete encasement would be 2 feet wide and extend 1 foot above and 1 foot below the pipe. Total excavation and fill would be less than 1.5 cubic yards within Waters of the U.S. The stilling well facilities would occupy approximately 32 square feet including facilities located within and outside of Waters of the U.S. Time for construction would be approximately 14 calendar days. The overall project footprint including the staging area is 0.11 acres with approximately 0.05 acres within Waters of the U.S.

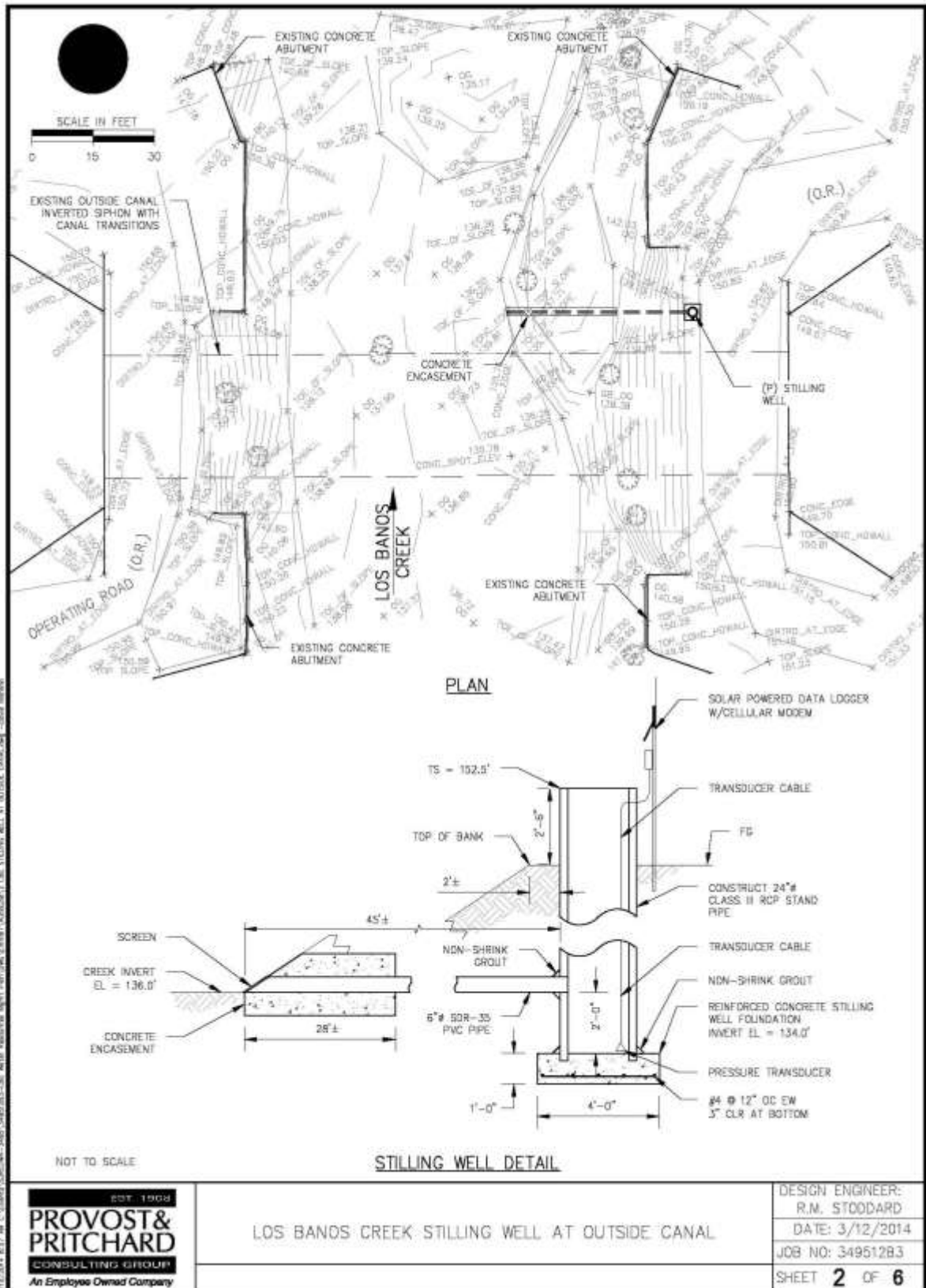


Figure 3 Outside Canal Design Drawing

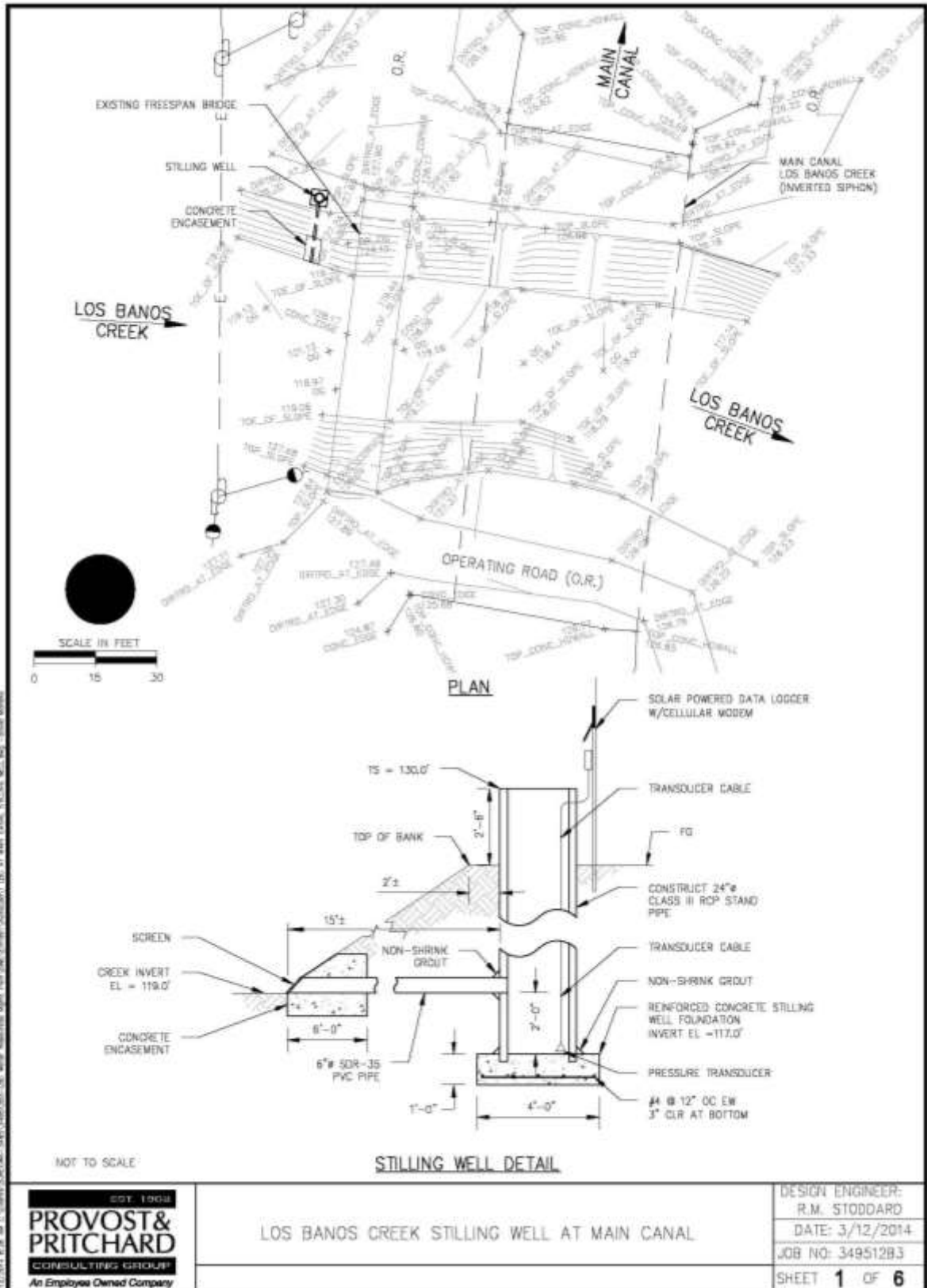


Figure 4 Main Canal Design Drawing

2.2.4 Timing of Construction and Equipment to be Used

Construction activities would take approximately 150 working days to complete. The majority of the work would likely be done concurrently. Work in Los Banos Creek would generally be done when the creek is dry; however, should rainfall occur during construction, Central California ID would implement measures required by a Clean Water Act 401 Permit and a Stormwater Pollution Prevention Plan (SWPPP). Normal working hours would be 0630-1700, Monday through Friday inclusive, excluding legal holidays. Construction would begin once environmental compliance and permitting are completed. Potential construction equipment is listed in Table 3.

Table 3 Equipment to be used during Construction

Type of Equipment (Make/Model)	Max Number Operated Units Per Day	Total Operated Days	Total Operated Hours
Pickup (Ford F250)	2	150	1,200
Flatrack Truck (Ford F550)	4	140	2,240
Air Compressor (Sullair 125)	2	13	100
Loader/Backhoe (Cat 446)	2	98	780
Excavator (Cat 345)	2	115	920
Loader (Cat 966)	2	83	660
Motor Grader (Cat143H)	2	4	30
Roller 1-3 Ton (Cat CB-225D)	2	8	60
Compactor (Cat 815)	2	19	150
Power Kick Broom (Lay-Mor 6HC)	2	5	40
Street Sweeper (Elgin Broom Bear)	2	5	40
Water Truck 4,000 Gallon (Cummins 11.9L)	2	106	850
Double Bottom Dump Truck (Cummins 11.9L)	4	7	110
Semi End Dump Truck (Cummins 11.9L)	16	9	590
Low Bed Truck (Cummins 11.9L)	4	36	570
Ready Mix Concrete Truck (Cummins)	8	4	140
Truck & 36-47M Concrete Pump (Mack MP8-445C)	2	18	140

2.2.5 Staging Areas, Quarry Areas, and Access Routes

Existing service roads for the DMC, Outside Canal, and Main Canal would be used to access the sites during construction. Specific locations for staging, access, and quarry areas are shown on the designs included in Appendix A.

A temporary road may be graded to provide access to the creek channel during construction (see Appendix A). Existing berms along the edges of the Los Banos Creek channel would be removed to allow equipment access into the creek and the embankment graded for a temporary access road. Removed material would be stored outside of the channel and replaced once access to the channel is no longer needed.

2.2.6 Permitting for the Proposed Action

Prior to construction within Los Banos Creek, Central California ID would submit, to the extent necessary, all appropriate applications for working within Los Banos Creek including:

- DFW Streambed Alteration Agreement
- Corps Clean Water Act Section 404
- California Regional Water Quality Control Board Clean Water Act Section 401

Copies of all permits shall be provided to Reclamation.

2.2.7 Environmental Commitments

Central California ID, Grasslands WD, and San Luis WD must implement the environmental protection measures included in Appendix C to reduce potential environmental consequences associated with the Proposed Action.

Environmental consequences for resource areas assume the measures specified would be fully implemented.

Section 3 Affected Environment and Environmental Consequences

This section identifies the potentially affected environment and the environmental consequences involved with the Proposed Action and the No Action Alternative, in addition to environmental trends and conditions that currently exist.

3.1 Resources Eliminated from Further Analysis

Reclamation analyzed the affected environment and determined that the Proposed Action did not have the potential to cause direct, indirect, or cumulative adverse effects to the resources listed in Table 4.

Table 4 Resources Eliminated from Further Analysis

Resource	Reason Eliminated
Indian Sacred Sites	The Proposed Action would not limit access to ceremonial use of Indian Sacred Sites on Federal lands by Indian religious practitioners or significantly adversely affect the physical integrity of such sacred sites. Therefore, there would be no impacts to Indian Sacred Sites as a result of the Proposed Action.
Indian Trust Assets	The Proposed Action would not impact Indian Trust Assets as there are none in the Proposed Action area. See Appendix E for Reclamation's determination.
Environmental Justice	The Proposed Action would not cause dislocation, changes in employment, or increase flood, drought, or disease nor would it disproportionately impact economically disadvantaged or minority populations.
Socioeconomic Resources	The Proposed Action would have beneficial impacts on socioeconomic resources for the riparian lands within Central California ID, Grasslands WD, and San Luis WD as the diverted riparian surface water would be used to help sustain existing crops and maintain farming within the districts.

3.2 Water Resources

3.2.1 Affected Environment

Delta-Mendota Canal

The DMC, the second largest of the CVP waterways, was completed in 1951. It includes a combination of both concrete-lined and earth-lined sections and is about 117 miles in length. The canal transports water from the Jones Pumping Plant to the Mendota Pool, which is controlled by a concrete storage dam that was constructed in 1917. The Mendota Pool is the terminus for the DMC and is located at the confluence of the San Joaquin River and the North Fork of the Kings River, approximately 30 miles west of the city of Fresno. Capacity in the

DMC is restricted by the physical limitations of the canal and the pumping limits of the Jones Pumping Plant.

Los Banos Creek

As described in Section 1.1, Los Banos Creek is an intermittent creek that is dammed at Reclamation's Los Banos Detention Dam. The dam was constructed as a flood control facility and is operated pursuant to the Corps' operating criteria and in accordance with License 12134 from the State Water Resources Control Board. The reservoir, with a capacity of 34,000 AF, is a joint-use facility owned by Reclamation and operated and maintained by DWR. The reservoir level is typically maintained at or near its minimum conservation elevation of 327.8 feet (20,600 AF) as depicted in Figure 5. The dam has two discharge lines and a spillway that releases water into a basin at the toe of the dam.

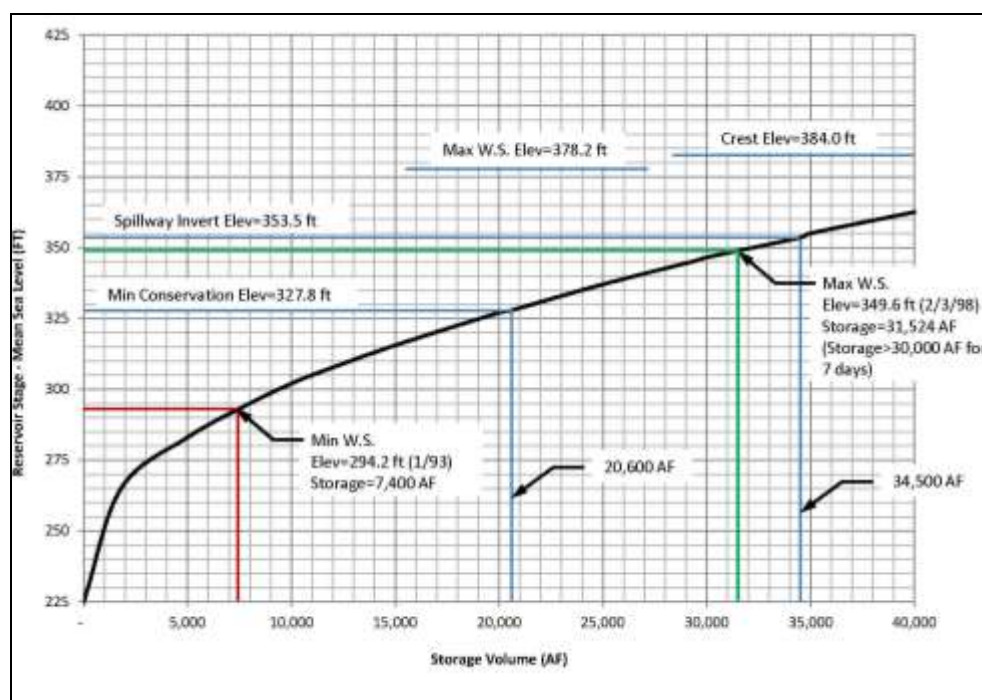


Figure 5 Los Banos Creek Detention Dam Stage-Storage Curve

Water quality data collected by Central California ID and by Reclamation in 2012 indicate that the water behind Los Banos Detention Dam is of acceptable quality (less than one parts per billion selenium, less than 600 milligram per liter [mg/L] total dissolved solids, 9-10 mg/L dissolved oxygen, and low levels of *Escherichia coli*¹). However, Los Banos Creek below the dam has been listed by the State Water Resources Control Board as an impaired water body requiring implementation of total maximum daily loads for boron, *E. coli*, and dissolved oxygen. Total maximum daily loads for these pollutants are expected to be reached by 2021 (State Water Resources Control Board 2014).

¹ Except for samples taken in an area used for swimming at Los Banos Reservoir.

Water Flow in Los Banos Creek below Los Banos Detention Dam Outflow from the dam passes through the outlet works and/or the spillway into the Los Banos Creek channel where it generally flows northeasterly with a downstream channel capacity of 1,000 cfs (see Figure 1). Water in the creek is carried under the San Luis Canal by a six barrel box culvert, and then over the DMC through six individual culverts. Central California ID's Main Canal and Outside Canal are located downstream of the DMC crossing. Water flows past these crossings until it terminates in the San Luis Spillway (see Figure 1). The San Luis Spillway delivers water to various refuges and duck clubs in Grasslands WD. Although hydrologically disconnected from the San Joaquin River, during flood events, flows from Los Banos Creek enter the San Luis Spillway requiring ponds to be emptied of previously delivered San Luis Spillway water in order to accommodate the Los Banos Creek flow. The previously delivered Spillway water is drained into Mud Slough, which empties into the San Joaquin River, sometimes compromising the San Joaquin River salinity goals.

Historically about 11,600 AF per year gets released from the Los Banos Detention Dam as a result of runoff from the watershed. Releases have ranged from 6 AF in dry years to as much as 62,000 AF in wet years, such as 1997-98 (see Appendix D). The average annual release between 1995 and 2011 has been about 11,600 AF with about 2,800 AF of that available to replenish the groundwater basin. The remaining 8,800 AF flows past the Central California ID Main Canal.

Water Delivery to Riparian Lands

Central California ID, Grasslands WD and San Luis WD have historically delivered surface water from the CVP and Los Banos Creek to the riparian lands shown in Figure 1. Delivered water has been and continues to be used for crop production as well as maintenance of wetlands, waterfowl habitat, and vegetation growth. Until approximately the early 1960's, a control structure existed at the junction of Los Banos Creek and the Central California ID Main Canal and Outside Canal that intercepted water flowing in Los Banos Creek for conveyance to the riparian lands located within Central California ID or within Grasslands WD. In the 1960's, the weir structures were replaced with siphons that pass under Los Banos Creek stopping re-regulation of these flows.

Groundwater Resources and Subsidence

The Proposed Action area lies within the Delta-Mendota sub-basin of the San Joaquin River Hydrologic Region (DWR 2003). The San Joaquin River Hydrologic Region covers approximately 9.7 million acres (15,200 square miles) and includes all of Calaveras, Tuolumne, Mariposa, Madera, San Joaquin, and Stanislaus counties, most of Merced and Amador counties, and parts of Alpine, Fresno, Alameda, Contra Costa, Sacramento, El Dorado, and San Benito counties (DWR 2003). Although conditions within this region vary significantly from location to location, DWR has estimated an annual overdraft of approximately 205,000 AF of groundwater within the San Joaquin Valley. This over-drafting of groundwater has caused ground subsidence since the mid-1920s. By 1970, 5,200 square miles of the valley were affected and maximum subsidence exceeded 28

feet in an area west of Mendota. Much of this area is now served by the CVP's San Luis Unit (DWR 2003; Reclamation 2005). During the past 40 years, recharge increased dramatically as a result of imported irrigation water. Increased rates of recharge resulting from percolation of irrigation water, combined with the rapid post-1967 decrease in pumping, caused a rise in the height of the water table over much of the western valley (Belitz and Heimes 1990). However, given increased groundwater pumping under CVP shortages and extended drought conditions over the past several years and given new groundwater pumping for permanent crop development outside the CVP service area, U.S. Geological Survey now is documenting the return of overdraft and land subsidence within portions of the Delta Mendota sub-basin.

The large-scale groundwater use during the 1960s and 1970s, combined with the introduction of imported surface water supplies, has modified the natural groundwater flow pattern in some areas. Flow largely occurs from areas of recharge toward areas of lower groundwater levels due to groundwater pumping (Bertoldi et al. 1991). The vertical movement of water in the aquifer has also been altered in this region as a result of thousands of wells constructed with perforations above and below the Corcoran clay layer, which, where present, provide a direct hydraulic connection (Bertoldi et al. 1991).

Nearly all of the groundwater near Los Banos is pumped from the upper aquifer with depth to the base of fresh water occurring at approximately 1,000 feet (KDSA 1991).

In general, groundwater quality constituent concentrations are lower in the western portion of the Action area and higher in the eastern portions. Additionally, quality tends to be better in sediments between the top of the Corcoran Clay (above 300 feet in depth) and below about 140 feet in depth. This is especially true of nitrate concentrations which tend to be higher in the shallower portions of the aquifer and lower in the deeper portions. Total dissolved solids concentrations range from 350 mg/L to 1,100 mg/L. Nitrate levels range from 6 mg/L to 36 mg/L. Chloride concentrations range from 58 to 210 mg/L. Sulfate concentrations range from 46 mg/L to 350 mg/L. Boron levels range from 0.5 to 2.8 mg/L. Chromium levels range from 0.02 to 0.35 mg/L. Arsenic ranges from 6 micrograms per liter ($\mu\text{g/L}$) to 9.5 $\mu\text{g/L}$ (KDSA 2010).

Central California ID measures groundwater levels throughout the Los Banos Creek groundwater subarea at regular intervals. Depth to water ranges from less than 10 feet beneath the northwest, northeast, and southeast part of the Los Banos Creek groundwater subarea (north of Highway 152), to more than 130 feet in the area west of the DMC and south of Los Banos Creek. Depth to water exceeds about 60 feet in most of the Los Banos Creek subarea.

Groundwater flow direction varies based upon wet or dry climatic conditions that determine the amount of releases from the Los Banos Detention Reservoir into

Los Banos Creek. During wet years a groundwater mound builds along the course of Los Banos Creek due to infiltration of surface water in the stream channel. The groundwater mound dissipates during dry years (KDSA 2010).

3.2.2 Environmental Consequences

No Action

Under the No Action Alternative, Reclamation would not allow Los Banos Creek water introductions into the DMC. Water within the creek would continue down the creek as it has in the past, often at rates greater than can be absorbed into the aquifer. Riparian landowners would continue to use whatever water they can from Los Banos Creek but would likely not be able to fully beneficially use all the water available to them from the creek. Water needs for these lands would continue to be met either by CVP deliveries by Central California ID, Grasslands WD, and/or San Luis WD or with additional groundwater pumping as it has in the past. Non-riparian landowners within the district would not be able to receive the portion of CVP water that could have been delivered to them under the Proposed Action.

Ponds within Grasslands WD would continue to need to be emptied of previously delivered water in order to accommodate the additional flows from Los Banos Creek when reservoir releases are made. Water quality salinity standards in the San Joaquin River as a result of release of previously delivered water would continue to be compromised as discussed above.

Proposed Action

On an average annual basis approximately 6,500 AF of Los Banos Creek flood flows would be available for irrigation and waterfowl habitat supply within the riparian lands shown in Figure 1. Approximately 340 AF of this water would also be available for additional direct recharge as shown in Appendix D. With the availability of this water, CVP water that would have been delivered to the riparian lands would instead be available for distribution to other landowners within Central California ID, Grasslands WD, and San Luis WD; providing additional water supply reliability for landowners within the districts. Slight beneficial effects to groundwater levels is expected to occur as a result of prolonged lower flow releases of the non-CVP water from the DMC to Los Banos Creek in conjunction with reduced groundwater pumping from in-lieu recharge. In addition, ponds within Grasslands WD would not need to be emptied of previously delivered water in order to accommodate the additional flood flows from Los Banos Creek, resulting in less flooding of farmlands and habitat.

Introduction and conveyance of non-CVP water is dependent on available capacity and operational constraints; therefore, the Proposed Action would not interfere with the normal operations of Federal facilities nor would it impede any CVP obligations to deliver water to other contractors or to local fish and wildlife habitat.

All waters introduced and conveyed within Federal facilities must meet Reclamation's water quality standards. If, through monitoring, the non-CVP water fails to meet the criteria for introduction into Federal facilities, the water would not be introduced until subsequent testing has demonstrated that the water quality meets the criteria as outlined in Reclamation's then current water quality standards (Reclamation 2014). With these requirements, in addition to the water quality environmental protection measures included in Appendix C, there would be no adverse impacts to water quality as a result of the Proposed Action.

Cumulative Impacts

Cumulative impacts result from incremental impacts of the Proposed Action or No Action alternative when added to other past, present, and reasonably foreseeable future actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. To determine whether cumulatively significant impacts are anticipated from the Proposed Action or the No Action alternative, the incremental effect of both alternatives were examined together with impacts from past, present, and reasonably foreseeable future actions in the same geographic area.

Reclamation has reviewed existing or foreseeable projects in the same geographic area that could affect or could be affected by the Proposed Action as Reclamation and CVP contractors have been working on various drought-related projects, including this one, in order to better manage and augment limited water supplies due to current hydrologic conditions and regulatory requirements. This and similar projects would have a cumulative beneficial effect on water supply during this critically dry year.

As in the past, hydrological conditions and other factors are likely to result in fluctuating water supplies which drive requests for water service actions. Water districts provide water to their customers based on customers' demands and available water supplies and timing, while attempting to minimize costs. Farmers irrigate and grow crops based on these conditions and factors, and a myriad of water service actions are approved and executed each year to facilitate water needs. It is likely that during the drought, more districts will request exchanges, transfers, and Warren Act contracts (conveyance of non-CVP water in CVP facilities) due to hydrologic conditions and regulatory actions affecting water supplies. Each water service transaction involving Reclamation undergoes environmental review prior to approval.

The Proposed Action and other similar projects would not hinder the normal operations of the CVP and Reclamation's obligation to deliver water to its contractors or to local fish and wildlife habitat.

Capacity in the DMC is limited, and if many water actions were scheduled to take place concurrently they could cumulatively compete for capacity. However, non-

CVP water would only be allowed to enter the DMC for conveyance through Federal facilities if excess capacity is available. As such, the Proposed Action would not limit the ability of other users to make use of the facilities.

As non-CVP water is required to meet Reclamation's water quality standards prior to introduction, no cumulative adverse water quality impacts are expected.

3.3 Biological Resources

3.3.1 Affected Environment

Reclamation requested an official species list from the U.S. Fish and Wildlife Service (Service) via the Sacramento Field Office's website, http://www.fws.gov/sacramento/ES_Species/Lists/es_species_lists-form.cfm, on July 18, 2014 (document number: 140718020935). The list is for Merced County (Service 2014). Reclamation also utilized the California Natural Diversity Database (CNDDDB 2014) and comments from DFW on Central California ID's California Environmental Quality Act document and comments from the Service on an early administrative draft of this EA. A summary table (Table 5) was created from the Service species list, CNDDDB records, and additional information within Reclamation's files. Reclamation and the Service also conducted a site visit of all the construction sites, other points along Los Banos Creek, and the Volta Wildlife Area within Grasslands WD on July 16, 2014.

Table 5 Special Status Species with the Potential to Occur in the Action Area

<i>Species</i>	<i>Status¹</i>	<i>Habitat</i>	<i>Effects²</i>	<i>Occurrence in the Proposed Action Area³</i>
AMPHIBIANS				
California red-legged frog (<i>Rana draytonii</i>)	FT, X	Red-legged frogs require aquatic habitat for breeding but also use a variety of other habitat types including riparian and upland areas. Adults often utilize dense, shrubby or emergent vegetation closely associated with deep-water pools with fringes of cattails and dense stands of overhanging vegetation such as willows.	NE	Absent. Species has been extirpated from the floor of the San Joaquin Valley.
California tiger salamander, central population (<i>Ambystoma californiense</i>)	FT, X, ST	Found primarily in annual grasslands; requires vernal pools or similar wetlands for breeding, and rodent burrows for upland refuge.	NE	Absent. Suitable habitat is lacking. The waterways in the Proposed Action Area lack the proper hydrology and/or contain predatory fishes. The active farmland surrounding the construction sites is not suitable as upland refugial habitat.
FISH				

Species	Status¹	Habitat	Effects²	Occurrence in the Proposed Action Area³
Central Valley spring-run chinook salmon (<i>Oncorhynchus tshawytscha</i>)	FT (NMFS), ST	Uses freshwater habitat in the San Joaquin River and is being restored to the river upstream of its confluence with the Merced River.	NE	Absent. The Proposed Action will not have a perceptible impact to the San Joaquin River. Los Banos Creek does not contribute much flow to the river even during flood events, and even to the extent that it would, some of the water delivered by Central California ID to Grasslands WD would still make it back into the system.
Central Valley steelhead (<i>Oncorhynchus mykiss</i>)	FT (NMFS)	Occurs in the San Joaquin River and its tributaries and may return to the upper reaches of the river as it is restored.	NE	Absent. The Proposed Action will not have a perceptible impact to the San Joaquin River. Los Banos Creek does not contribute much flow to the river even during flood events, and even to the extent that it would, some of the water delivered by Central California ID to Grasslands WD would still make it back into the system.
Delta smelt (<i>Hypomesus transpacificus</i>)	FT, ST	Endemic to the Delta. Found in San Joaquin River up to Mossdale in some years and in Sacramento River up to Rio Vista where salinity is 2-7 ppt.	NE	Absent. No natural waterways within the species' range would be affected by the proposed action.
North American green sturgeon (<i>Acipenser medirostris</i>)	FT (NMFS)	Occurs in the San Joaquin Delta and spawns in the Sacramento River system.	NE	Absent. No natural waterways within the species' range would be affected by the proposed action.
Sacramento River winter-run chinook salmon (<i>Oncorhynchus tshawytscha</i>)	FE (NMFS), SE	Occurs in the San Joaquin Delta and spawns in the Sacramento River system.	NE	Absent. No natural waterways within the species' range would be affected by the proposed action.
INVERTEBRATES				
Conservancy fairy shrimp (<i>Branchinecta conservatio</i>)	FE, X	Vernal pool habitats. The species is currently known from several disjunct populations: the Vina Plains in Tehama County, south of Chico in Butte County, the Jepson Prairie Preserve and surrounding area in Solano County, Sacramento National Wildlife Refuge in Glenn County, Mapes Ranch west of Modesto, San Luis National Wildlife Refuge and the Haystack Mountain/Yosemite Lake area in Merced County, and two locations on the Los Padres National Forest in Ventura County.	NE	Absent. No vernal pools exist in vicinity of work sites.

Species	Status¹	Habitat	Effects²	Occurrence in the Proposed Action Area³
Longhorn fairy shrimp (<i>Branchinecta longiantenna</i>)	FE, X	Endemic to the eastern margin of the central coast mountains in vernal pools.	NE	Absent. No vernal pools exist in vicinity of work sites.
Valley elderberry longhorn beetle (<i>Desmocerus californicus dimorphus</i>)	FT	Lives in elderberry shrubs of California's Central Valley and Sierra Foothills with stems one inch or greater in diameter at ground level.	NE	Absent. No elderberry shrubs exist in vicinity of work sites.
Vernal pool fairy shrimp (<i>Branchinecta lynchi</i>)	FT, X	Primarily found in vernal pools, may use other seasonal wetlands.	NE	Absent. No vernal pools exist in vicinity of work sites.
Vernal pool tadpole shrimp (<i>Lepidurus packardii</i>)	FE, X	The vernal pool tadpole shrimp is currently distributed across the Central Valley of California and in the San Francisco Bay area. Inhabits highly turbid vernal pools.	NE	Absent. No vernal pools exist in vicinity of work sites.
BIRDS				
California condor (<i>Gymnogyps californianus</i>)	FE, SE	Uses large areas of grassland or oak savannas for foraging. Usually forages on deer carcasses, but may also use beef cattle carcasses.	NE	Absent. This species would only be expected to occur along the edges of the San Joaquin Valley.
Swainson's hawk (<i>Buteo swainsoni</i>)	ST	Uses larger trees (often riparian trees, but not always) for nesting and roosting, and forages in open fields and over certain crops such as alfalfa (can't forage in vineyards or orchards).	NLAA	Present. Known to occur in the vicinity of the Proposed Action Area, but will be protected from adverse impacts due to the lack of removal of large trees, and the measures incorporated into the Proposed Action.
Western burrowing owl (<i>Athene cunicularia</i>)	SSC	Occurs in grasslands and can forage in pastures and some row and field crops. Uses California ground squirrel burrows.	NLAA	Possible. Not seen on the 7/16/14 site visit, but suitable habitat is present, especially at the DMC/Los Banos Creek crossing. Will be adequately projected by measures incorporated into the Proposed Action.
MAMMALS				
Fresno kangaroo rat (<i>Dipodomys nitratoides exilis</i>)	FE, SE	Prefers arid, alkaline plains with sparse vegetation.	NE	Absent. No suitable habitat and outside known range.
Giant kangaroo rat (<i>Dipodomys ingens</i>)	FE, SE	San Joaquin River Annual grassland on gentle slopes of generally less than 10°, with friable, sandy-loam soils. However, most remaining populations are on poorer, marginal habitats which include shrub communities on a variety of soil types and on slopes up to about 22°.	NE	Absent. This species is sensitive to disturbance and cannot exist in a matrix of agricultural lands.

Species	Status¹	Habitat	Effects²	Occurrence in the Proposed Action Area³
San Joaquin kit fox (<i>Vulpes macrotis mutica</i>)	FE, ST	Annual grasslands or grassy open stages with scattered shrubby vegetation. Need loose-textured sandy soils for burrowing, and suitable prey base.	NLAA	Possible. CNDDDB records indicate that this species has been seen in the vicinity of the Proposed Action Area. The Proposed Action may affect, but is not likely to adversely affect this species, due to the small area of low-quality habitat that would be impacted, and the measures incorporated into the Proposed Action.
PLANTS				
Colusa grass (<i>Neostapfia colusana</i>)	FT, SE	Occurs in vernal pools.	NE	Absent. No vernal pools exist in vicinity of work sites.
Greene's tuctoria (<i>Tuctoria greenei</i>)	FE, X, SR	Occurs in vernal pools.	NE	Absent. No vernal pools exist in vicinity of work sites.
hairy Orcutt grass (<i>Orcuttia pilosa</i>)	FE, X, SE	Occurs in vernal pools.	NE	Absent. No vernal pools exist in vicinity of work sites.
Hartweg's golden sunburst (<i>Pseudobahia bahiifolia</i>)	FE, SE	Found on certain soils along the eastern edge of the San Joaquin Valley.	NE	Absent. Proposed Action Area is outside the species' range.
Hoover's spurge (<i>Chamaesyce hooveri</i>)	FT, X	Occurs in vernal pools.	NE	Absent. No vernal pools exist in vicinity of work sites.
Keck's checker-mallow (<i>Sidalcea keckii</i>)	FE	Grows on Sierra Nevada foothill grasslands.	NE	Absent. Proposed Action Area is outside the species' range.
San Joaquin Valley Orcutt grass (<i>Orcuttia inaequalis</i>)	FT, X, SE	Occurs in vernal pools.	NE	Absent. No vernal pools exist in vicinity of work sites.
succulent owl's-clover (<i>Castilleja campestris</i> ssp. <i>succulenta</i>)	FT, X, SE	Occurs in vernal pools.	NE	Absent. No vernal pools exist in vicinity of work sites.
REPTILES				
Blunt-nosed leopard lizard (<i>Gambelia sila</i>)	FE, SE, FP	Resident of sparsely vegetated alkali and desert scrub habitats in areas of low topographic relief. They seek cover in mammal burrows, under shrubs or structures such as fence posts; they do not excavate their own burrows.	NE	Absent. The habitat required by this species is lacking in the Proposed Action Area.

Species	Status¹	Habitat	Effects²	Occurrence in the Proposed Action Area³
Giant garter snake (<i>Thamnophis gigas</i>)	FT, ST	Prefers freshwater marsh and low gradient streams. Has adapted to drainage canals and irrigation ditches.	NLAA	Present. CNDDDB records indicate that this species occurs in the Volta Wildlife Area, and may also occur near the Outside and Main Canal work sites. The construction activity in the Proposed Action may affect, but is not likely to adversely affect this species, due to the small area of low-quality habitat that would be impacted, and the measures incorporated into the Proposed Action. The species may benefit from improved water management downstream in the Volta Wildlife Area.
<p>1 Status=</p> <p>FE: Federally listed as Endangered.</p> <p>FT: Federally listed as Threatened.</p> <p>NMFS: Species under the Jurisdiction of the National Marine Fisheries Service.</p> <p>SE: State listed as Endangered</p> <p>ST: State listed as Threatened</p> <p>FP: Fully Protected under CA Fish and Game Code</p> <p>SSC: State species of special concern</p> <p>2 Effects =</p> <p>NE = No Effect determination</p> <p>NLAA = May affect, but not likely to adversely affect</p> <p>3 Definition Of Occurrence Indicators in Proposed Action Area=</p> <p>Present: Species observed and suitable habitat present</p> <p>Possible: Species reported in area but suitable habitat suboptimal or entirely lacking</p> <p>Absent: Either outside a species' range, or lack of suitable habitat</p> <p>4 CNDDDB= California Natural Diversity Database 2014</p>				

As shown in Table 5, only four special-status species may occur or are known to occur in the Proposed Action Area.

Row and field crops are grown within Central California ID, including the specific riparian parcels involved with this Proposed Action, and there is currently no land planted with rice.

The site at the DMC where the weir, piping, and turnout would be constructed consists of bare ground and the creek channel is rocky and devoid of vegetation. The Outside Canal location has sparse riparian vegetation, including some large-diameter trees such as cottonwoods, and a great deal of trash that has been illegally dumped. At the Main Canal location, there is dense riparian vegetation, consisting mostly of small-diameter willow trees (*Salix* sp.). Los Banos Creek from the DMC crossing downstream to Grasslands WD has trash, piled brush, and in one location, manmade bee hives below the ordinary high water mark. Sparse riparian vegetation is found in several areas.

Migratory Birds

Table 6 includes two special-status migratory birds. However, riparian vegetation found at the Main and Outside Canal locations may be used by a variety of small passerines or by corvids. Yellow-billed magpies, for instance, were seen during the July 16, 2014 site visit. In the wetlands within the riparian parcels in Grasslands WD, several species of waterfowl (especially ducks) and shorebirds winter there, and some species occur there year-round and utilize wetlands that remain wet during the spring and summer for brooding habitat.

The managed wetlands in Grasslands WD provide habitat for a variety of wintering waterfowl and many other waterbirds, as well as brood habitat for year-round species, such as mallards. This is the largest remaining contiguous freshwater marsh habitat in the Pacific Flyway (Rahilly 2008). Swamp timothy (*Criopsis schenoides*) is the main forage plant grown in managed wetlands such as in Grasslands WD, and provides forage for several duck species, as well as habitat for some shorebird species (Rahilly 2008 and references therein). The wetlands are typically drawn down in mid-March (Rahilly 2008), to allow swamp timothy to germinate, then irrigated within a month after drawdown to provide water for swamp timothy growth.

Wildlife Refuges

Pursuant to the section 3406(d) of the Central Valley Project Improvement Act (CVPIA), Reclamation is required to provide refuge water supplies to 19 identified refuges, including those within Grasslands WD. Annual refuge water allocations were established in the Report on Refuge Water Supply Investigations (3/1989) and the San Joaquin Basin Action Plan/Kesterson Mitigation Plan (12/1989), both reports incorporated into CVPIA by reference. Allocations are distinguished for two water types, Level 2 and Level 4. Level 2 Refuge Water Supplies refer to the historical annual average amount of water the refuges received between 1977 and 1984. Level 4 Refuge Water Supply is the annual amount of water needed for full development of the refuges based upon management goals developed in the 1980s. Incremental Level 4 (IL4) is the difference between historic annual average water deliveries (Level 2) to refuges, and the refuge water supplies required to achieve optimum wetlands and wildlife habitat management (Level 4).

Grasslands WD's Level 2 (historical use prior to CVPIA) supply is 125,000 AF, and their Level 4 (needed for optimal habitat management) supply is 180,000 AF.

Section 3406(d)(2) of the CVPIA requires that Reclamation provide full Level 4 supplies to all refuges starting in 2002. However, due to constraining issues including availability of water for IL4 acquisition, funding and inadequate external conveyance capacity, Reclamation has not yet been able to meet that goal.

Federally-listed Species

The creek tends to be ephemeral, dry except during floods in the more upstream reaches, but receives water from some discharges and drains in the lower reaches (Central Valley Regional Water Quality Control Board 1989). The riparian vegetation at the three canal crossings and upstream of the wetlands within Grasslands WD is either very sparse, or very dense, herbaceous wetland vegetation is generally lacking, and most of these areas are dry except during rain events, and as such, they don't provide high quality habitat for giant garter snakes, which need adequate water during their active season to support a prey base, and which generally occur where there is emergent herbaceous wetland vegetation.

The three crossings also don't provide high quality habitat for San Joaquin kit foxes. The Outside and Main Canal locations have riparian vegetation. The San Joaquin kit fox uses either grassland or arid shrubland habitat. They are an arid-adapted species and don't occur where there is dense vegetation, which can make it more difficult to avoid predators, such as coyotes. At the DMC crossing, this area is more open, although it is surrounded by agricultural lands, which are subject to routine ground disturbance and therefore don't usually provide denning habitat (Warrick et al. 2007).

Agricultural lands within San Luis WD provide foraging habitat for the San Joaquin kit fox, although routine ground disturbance associated with farming activities also likely precludes denning (Warrick et al. 2007). The riparian parcels involved in the Proposed Action would not provide blunt-nosed leopard lizard habitat, although other lands to the north and west within San Luis WD do. While current urban development within San Luis WD's CVP service area is limited (800 AF per year is delivered for municipal and industrial use), future growth is expected in and around Santa Nella, which is a narrow connection between the kit fox's northern range and populations to the south. None of the riparian parcels involved in the Proposed Action located within San Luis WD discharge drainage water to the Grassland Bypass Project, so affects associated with that project would not occur under the Proposed Action.

Critical Habitat

There is no critical habitat in the Proposed Action area.

3.3.2 Environmental Consequences

No Action

There would be no impact to biological resources as conditions would remain the same.

Proposed Action

Ground-disturbing activities conducted as an indirect effect of Reclamation's and the Corps' proposed actions could affect the giant garter snake as these activities could harass, harm, injure, or kill giant garter snakes. The total area of permanent impact within the creek channel at the Outside and Main Canal locations would

be small, only 0.11 acres, and 0.14 acres of adjacent uplands would be temporarily impacted by staging. The 0.20 acres of creek channel disturbance at the DMC crossing lacks any vegetation. As with the giant garter snake, the same type of effects could occur on the San Joaquin kit fox, especially where Los Banos Creek crosses the DMC (but staging and access could also affect kit foxes at the other two locations). The impact in the creek channel would be 0.20 acres. The access road, staging area, and piping (10 feet wide by six feet high box culvert) would temporarily affect about 1.30 acres. The DMC is a concrete-lined canal, and so the new turnout and other associated disturbance would not impact any habitat. The potential adverse effects, however, would be extremely unlikely to occur because of the conservation measures, and because of the low quality of habitat available and small area of impact. Central California ID has little if any habitat in their service area and would only use the water for existing uses. San Luis WD would also only use the water for existing uses; San Luis WD does have some suitable habitat for the San Joaquin kit fox, but they have committed not to deliver any water to these lands without evidence of Endangered Species Act compliance.

The Proposed Action would divert relatively high-quality water from Los Banos Creek into the DMC, before it has a chance to flow downstream and pick up constituents that would reduce the water quality. The diversion of this water would also help facilitate draw down of the managed wetlands in Grasslands WD during years in which reservoir releases are made. By the diversion of the water into the DMC, some flooding of winter refugia of giant garter snakes may be prevented. The water supply developed by the Project will provide regulated water to Grasslands WD that may be used to support giant garter snake habitat in the northern grasslands area during their active season.

Reclamation doesn't expect the weir in the creek at the DMC crossing to impede kit fox movement across the creek bed (which is usually dry). Even though the ponded water at the DMC crossing would be deeper and wider than the water in the creek would usually be during a flood release, the elevated water surface would only extend upstream a very short distance and flood release events are usually for short periods of time. The Project does not increase the length of time that the Los Banos Creek channel has water in it.

Swainson's hawks, western burrowing owls, and other various migratory birds could be subject to some minor disturbance, but would not be taken (as defined under the Migratory Bird Treaty Act). If some trees with a diameter at breast height of two inches or greater, but less than four inches have to be removed at the Main Canal location, they would be replaced at a 1:1 ratio.

As a result of the above, Reclamation has determined that the effects of the Proposed Action on the giant garter snake (during construction), San Joaquin kit fox, Swainson's hawk, western burrowing owl, and other migratory birds would

be very minor and are not likely to be adverse. Long-term effects on the giant garter snake and waterfowl and shorebirds may be beneficial.

On February 20, 2015, Reclamation received a memorandum from the Service concurring with Reclamation that effects of the Proposed Action are not likely to adversely affect San Joaquin kit fox or the giant garter snake (see Appendix I). Measures to avoid or minimize effects to listed species will be implemented by Reclamation and the districts (see Appendix C and I).

Reclamation also consulted with the Service under the Fish and Wildlife Coordination Act (FWCA). A draft Coordination Act Report was included as an appendix to the Draft EA and the recommended measures were revised following comments by Reclamation and a response from the Service and are included as part of the Proposed Action.

Cumulative Impacts

Cumulative impacts include past losses of habitat in the area due to creek channelization, alteration of natural creek flows by dam construction, losses due to conversion of natural habitat to agricultural uses, and habitat losses and fragmentation because of road construction, and introduction of invasive species. Ongoing impacts include pesticide and herbicide use on crops, routine canal maintenance which may include rodent control, ground disturbance associated with routing farming activity, illegal dumping in the bed of Los Banos Creek, and beneficial wetland management activities at the Volta Wildlife Area and in the Grasslands WD. These ongoing impacts are expected to continue in the future. However, as a result of the small footprint of the construction areas, the poor quality of habitat at those locations, and the measures that would be implemented to protect special-status species, the Proposed Action will have very little cumulative contribution toward impacts to biological resources.

3.4 Cultural Resources

Cultural resources is a broad term that includes prehistoric, historic, architectural, and traditional cultural properties. The National Historic Preservation Act of 1966 is the primary Federal legislation that outlines the Federal Government's responsibility to cultural resources. Section 106 of the National Historic Preservation Act requires the Federal Government to take into consideration the effects of an undertaking on cultural resources listed on or eligible for inclusion in the National Register of Historic Places (National Register). Those resources that are on or eligible for inclusion in the National Register are referred to as historic properties.

The Section 106 process is outlined in the Federal regulations at 36 CFR Part 800. These regulations describe the process that the Federal agency (Reclamation) takes to identify cultural resources and the level of effect that the proposed undertaking will have on historic properties. In summary, Reclamation must first

determine if the action is the type of action that has the potential to affect historic properties. If the action is the type of action to affect historic properties, Reclamation must identify the area of potential effects, determine if historic properties are present within that area of potential effects, determine the effect that the undertaking will have on historic properties, and consult with the State Historic Preservation Office (SHPO), to seek concurrence on Reclamation's findings. In addition, Reclamation is required through the Section 106 process to consult with Indian Tribes concerning the identification of sites of religious or cultural significance, and consult with individuals or groups who are entitled to be consulting parties or have requested to be consulting parties.

3.4.1 Affected Environment

The area of potential effects for the Proposed Action is located in Merced County in three separate locations along Los Banos Creek at intersections with the DMC, Main Canal, and Outside Canal. These locations are situated approximately 3.5 miles south-southwest, 2.5 southwest, and 1.5 miles northwest of the City of Los Banos respectively.

Prior to field investigations a record search was conducted at the Southern San Joaquin Valley Information Center; file number 8422N. No previous investigations have been documented within the area of potential effects or immediate vicinity; however, a single resource (a segment of the DMC) was identified within the project area of potential effects. The DMC is documented as P-50-001904 and is part of the CVP. Reclamation is in the process of nominating the entire CVP to the National Register. The DMC, as part of the CVP, has been found eligible for inclusion in the National Register under Criterion A for its association with irrigation and agricultural development of California.

In addition, archival research suggested the Main Canal and Outside canal may be eligible for the National Register, although neither appeared to have been documented. The Main Canal was built in the 1870s by the San Joaquin and Kings River Canal Company. At the time of its construction the canal was the largest irrigation conveyance in the valley. The Outside Canal was built by the San Joaquin and Kings River Canal Company circa 1900. Both the Main and Outside canals are owned and managed by Central California ID.

A field survey was conducted of the three discontinuous area of potential effects locations. Identified within each were the three previously discussed canals. No other cultural resources were identified within the area of potential effects.

3.4.2 Environmental Consequences

No Action

Under the No Action alternative, the proposed installation of connection and creek control structures at the DMC and the construction of stilling wells at the Main and Outside canals would not be conducted. As such, there would be no undertaking as defined in Section 301(7) of the National Historic Preservation

Act, and the Section 106 review process would not be required. The No Action alternative would result in no impacts to cultural resources.

Proposed Action

The Proposed Action would result in installation of connection and creek control structures at the DMC and the construction of stilling wells at the Main and Outside canals. This Action was determined to be the kind of action with the potential to cause effects on historic properties. Through the Section 106 review process, Reclamation determined the area of potential effects and took steps to identify cultural resources that might be affected by the Proposed Action.

Identified within the area of potential effects were the three canals; DMC, Main, and Outside as described above. The proposed installation of connection and creek control structures to the DMC would not alter the characteristics that make the DMC eligible for listing on the National Register, as this construction is minor compared to the length of the DMC and is consistent with existing structures associated with its use. Historic characteristics of the larger CVP will also remain unaltered. Consequently, the association with irrigation and agricultural development in California that makes this system eligible for the National Register remains unchanged.

The Main Canal and the Outside Canal are owned and operated by the Central California ID and have not been formally evaluated for inclusion in the National Register. Given the scope and scale of the project as it pertains to these locations, Reclamation, for the purpose of this project, is treating the canals as eligible for inclusion under Criterion A for their association with irrigation and agricultural development of California. Reclamation has determined that the proposed project will not adversely affect any of the characteristics of the canals that would make them eligible for National Register inclusion.

Based on the discussion above, Reclamation has determined that the Proposed Action will have no adverse effects to historic properties under 36 CFR § 800.5(b). SHPO concurred with Reclamation's determination on October 10, 2014 (see Appendix F).

Cumulative Impacts

The Proposed Action would not substantially contribute to any cumulative impacts on the DMC, Main Canal, or Outside Canal.

3.5 Air Quality

Section 176 (C) of the Clean Air Act (42 U.S.C. 7506 (C)) requires any entity of the Federal government that engages in, supports, or in any way provides financial support for, licenses or permits, or approves any activity to demonstrate that the action conforms to the applicable State Implementation Plan required under Section 110 (a) of the Federal 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 State Implementation Plan's purpose of eliminating or reducing the severity and number of violations of the National Ambient Air Quality Standards 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 would, in fact conform to the applicable State Implementation Plan before the action is taken.

On November 30, 1993, the Environmental Protection Agency (EPA) promulgated final general conformity regulations at 40 CFR 93 Subpart B for all Federal activities except those covered under transportation conformity. The general conformity regulations apply to a proposed Federal action in a non-attainment or maintenance area if the total of direct and indirect emissions of the relevant criteria pollutants and precursor pollutant caused by the Proposed Action equal or exceed certain *de minimis* amounts thus requiring the Federal agency to make a determination of general conformity.

3.5.1 Affected Environment

The Proposed Action area lies within the San Joaquin Valley Air Basin under the jurisdiction of the San Joaquin Valley Air Pollution Control District. The pollutants of greatest concern in the San Joaquin Valley are carbon monoxide, ozone, ozone precursors such as reactive organic gases (ROG) or volatile organic compounds (VOC), inhalable particulate matter between 2.5 and 10 microns in diameter (PM₁₀) and particulate matter less than 2.5 microns in diameter (PM_{2.5}). The San Joaquin Valley Air Basin has reached Federal and State attainment status for carbon monoxide, nitrogen dioxide, and sulfur dioxide. Although Federal attainment status has been reached for PM₁₀ the State standard has not been met and both are in non-attainment for ozone and PM_{2.5} (San Joaquin Valley Air Pollution Control District 2014). There are no established standards for nitrogen oxides (NO_x); however, they do contribute to nitrogen dioxide standards and ozone precursors (San Joaquin Valley Air Pollution Control District 2014).

3.5.2 Environmental Consequences

No Action

Under the No Action Alternative, the only air quality impacts directly generated at the project site would be from periodic site access of a few vehicles along the unpaved access road, related to monitoring, operations and maintenance activities by San Luis Delta-Mendota Water Authority and Central California ID and road maintenance. However, pollutants generated elsewhere would also occur in the air at the site, due to the fact that wind mixes air and carries pollutants across distances.

Proposed Action

There would be no air quality impacts due to the introduction of Los Banos Creek water to the DMC as introduction, and subsequent deliveries, would be done via

gravity flow. However, construction activities would cause temporary impacts to air quality due to dust and exhaust emissions. Estimated air quality emissions for construction activities associated with the Proposed Action were calculated utilizing the California Emissions Estimator Model (CalEEMod Version 2013.2) and are included in Appendix G. Table 6 provides a summary of the estimated emissions.

Table 6 Calculated Proposed Action Unmitigated Annual Emissions

	VOC/ROG (tons/year)	NO _x (tons/year)	PM ₁₀ (tons/year)	CO _{2e} ¹ (metric tons/year)
Construction Emissions	1.61	9.76	0.51	1,011
Operational Emissions	0.38	0.00001	0	0.0016
Total Emissions	1.99	9.76	0.51	1,011
Thresholds of Significance ²	10	10	15	--
¹ Carbon dioxide equivalents per year.				
² Based on the San Joaquin Valley Air Pollution Control District's adopted thresholds of significance for construction emissions of criteria pollutants (<i>de minimis</i>) adopted July 2014.				

As shown in Table 6, calculated unmitigated annual emissions for construction and operations are each well below the *de minimis* thresholds for the San Joaquin Valley Air Pollution Control District. In addition, environmental protection measures have been incorporated into the Proposed Action in order to minimize emissions from construction activities (see Appendix C). Consequently, the Proposed Action would not result in a substantial adverse impact upon air quality and a conformity analysis pursuant to the CAA is not required.

Cumulative Impacts

Construction, operation and maintenance emissions for the Proposed Action are well below the *de minimis* thresholds established by the San Joaquin Valley Air Pollution Control District and are expected to be temporary in duration. As a result, the Proposed Action is not expected to contribute to cumulative adverse impacts to air quality.

3.6 Global Climate Change

3.6.1 Affected Environment

Climate change refers to significant change in measures of climate (e.g., temperature, precipitation, or wind) lasting for decades or longer. Many environmental changes can contribute to climate change [changes in sun's intensity, changes in ocean circulation, deforestation, urbanization, burning fossil fuels, etc.] (EPA 2014a).

Gases that trap heat in the atmosphere are often called greenhouse gases. Some greenhouse gases, such as carbon dioxide (CO₂), occur naturally and are emitted to the atmosphere through natural processes and human activities. Other greenhouse gases (e.g., fluorinated gases) are created and emitted solely through human activities. The principal greenhouse gases that enter the atmosphere

because of human activities are: CO₂, methane (CH₄), nitrous oxide, and fluorinated gasses (EPA 2014a).

During the past century humans have substantially added to the amount of greenhouse gases in the atmosphere by burning fossil fuels such as coal, natural gas, oil and gasoline to power our cars, factories, utilities and appliances. The added gases, primarily CO₂ and CH₄, are enhancing the natural greenhouse effect, and likely contributing to an increase in global average temperature and related climate changes. At present, there are uncertainties associated with the science of climate change (EPA 2014b).

Climate change has only recently been widely recognized as an imminent threat to the global climate, economy, and population. As a result, the national, state, and local climate change regulatory setting is complex and evolving.

In 2006, the State of California issued the California Global Warming Solutions Act of 2006, widely known as Assembly Bill 32, which requires California Air Resources Board (CARB) to develop and enforce regulations for the reporting and verification of statewide greenhouse gases emissions. CARB is further directed to set a greenhouse gases emission limit, based on 1990 levels, to be achieved by 2020.

In addition, the EPA has issued regulatory actions under the Clean Air Act as well as other statutory authorities to address climate change issues (EPA 2014c). In 2009, the EPA issued a rule (40 CFR Part 98) for mandatory reporting of greenhouse gases by large source emitters and suppliers that emit 25,000 metric tons or more of greenhouse gases [as CO₂ equivalents per year] (EPA 2009). The rule is intended to collect accurate and timely emissions data to guide future policy decisions on climate change and has undergone and is still undergoing revisions (EPA 2014c).

3.5.2 Environmental Consequences

No Action

There would be no impact to global climate change as conditions would remain the same as existing conditions.

Proposed Action

As shown in Table 6, annual construction and operational emissions of CO_{2e} are estimated to be 1,001 metric tons, well less than the EPA's 25,000 metric tons per year threshold for annually reporting greenhouse gases emissions. Accordingly, the Proposed Action would result in below *de minimis* impacts to global climate change.

Cumulative Impacts

Greenhouse gases emissions generated by the Proposed Action are expected to be extremely small, as seen in Table 6. While any increase in greenhouse gases

emissions would add to the global inventory of gases that would contribute to global climate change, the Proposed Action would result in potentially minimal to no increases in greenhouse gases emissions and a net increase in greenhouse gases emissions among the pool of greenhouse gases would not be detectable.

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Section 4 Consultation and Coordination

4.1 Public Review Period

Reclamation provided the public with an opportunity to comment on the Draft FONSI and Draft EA between November 21, 2014 and December 22, 2014. No comments were received.

4.2 Fish and Wildlife Coordination Act (16 U.S.C. § 661 et seq.)

FWCA requires that Reclamation consult with fish and wildlife agencies (Federal and state) on all water development projects that could affect biological resources. The amendments enacted in 1946 require consultation with the Service and State fish and wildlife agencies “whenever the waters of any stream or other body of water are proposed or authorized to be impounded, diverted, the channel deepened, or the stream or other body of water otherwise controlled or modified for any purpose whatever, including navigation and drainage, by any department or agency of the United States, or by any public or private agency under Federal permit or license”. Consultation is to be undertaken for the purpose of “preventing the loss of and damage to wildlife resources”.

Reclamation consulted with the Service pursuant to FWCA. A draft Coordination Act Report was received on September 11, 2014 and included as part of the draft EA. Reclamation submitted clarification comments to the Service on September 16, 2014. The Service agreed with our comments in their response on September 18, 2014. The draft Coordination Act Report has been included as Appendix H. The emailed comments and the response by the Service are in Reclamation’s files. The Service subsequently determined that they did not need to prepare a final Coordination Act Report.

4.3 Endangered Species Act (16 U.S.C. § 1531 et seq.)

Section 7 of the ESA requires Federal agencies, in consultation with the Secretary of the Interior and/or Commerce, 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 sent an informal consultation request to the Service under section 7 of the ESA on December 11, 2014. On February 20, 2015, Reclamation received a memorandum from the Service concurring with Reclamation that effects of the Proposed Action may affect, but are not likely to adversely affect the San Joaquin kit fox or the giant garter snake (see Appendix I).

4.4 National Historic Preservation Act (16 U.S.C. § 470 et seq.)

The National Historic Preservation Act of 1966, as amended (16 U.S.C. 470 et seq.), 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 National Historic Preservation Act.

Section 106 of the National Historic Preservation Act requires Federal agencies to consider the effects of Federal undertakings on historic properties, properties determined eligible for inclusion in the National Register. Compliance with Section 106 follows a series of steps that are designed to identify interested parties, determine the area of potential effects, conduct cultural resource inventories, determine if historic properties are present within the area of potential effects, and assess effects on any identified historic properties.

Reclamation consulted with SHPO on its determination of no adverse effects to historic properties under 36 CFR § 800.5(b). SHPO concurred with Reclamation's determination on October 10, 2014 (see Appendix F).

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

Section 401 of the Clean Water Act (33 U.S.C. § 1311) prohibits the discharge of any pollutants into navigable waters, except as allowed by permit issued under sections 402 and 404 of the Clean Water Act (33 U.S.C. § 1342 and 1344). If new structures (e.g., treatment plants) are proposed, that would discharge effluent into navigable waters, relevant permits under the Clean Water Act would be required for the project applicant(s). Section 401 requires any applicant for an individual Corps dredge and fill discharge permit to first obtain certification from the state that the activity associated with dredging or filling will comply with applicable state effluent and water quality standards. This certification must be approved or waived prior to the issuance of a permit for dredging and filling. Section 404 of the Clean Water Act authorizes the Corps to issue permits to regulate the discharge of "dredged or fill materials into waters of the United States" (33 U.S.C. § 1344)

Central California ID has applied for a Section 404 permit from the Corps for activities associated with the Proposed Action. Central California ID has also applied for a Section 401 permit from the California Regional Water Quality Control Board.

4.6 Executive Order 11988 – Floodplain Management

Executive Order 11988 requires that all Federal agencies take action to reduce the risk of flood loss, to restore and preserve the natural and beneficial values served by floodplains, and to minimize the impact of floods on human safety, health, and welfare. The Proposed Action is partially located within a floodplain; however, Reclamation has determined that a floodplain assessment is not necessary for the Proposed Action. The floodplain will be returned to its existing conditions when construction pursuant to the Proposed Action has been completed.

4.7 California Fish and Game Code (Sections 1600 et seq.)

Section 1602 of the California Fish and Game Code requires an entity to notify DFW of any proposed activity that may substantially modify a river, stream, or lake. Central California ID received a Final Streambed Alteration Agreement (1600-2013-0017-R4) for the project on July 9, 2013.

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