

# RECLAMATION

*Managing Water in the West*

Finding of No Significant Impact

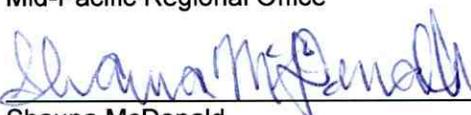
## Contra Costa Canal Replacement Segment 2

FONSI-13-019

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# Introduction

In accordance with section 102(2)(c) of the National Environmental Policy Act (NEPA) of 1969, as amended, the South-Central California Area Office of the Bureau of Reclamation (Reclamation), has determined that an environmental impact statement is not required for Contra Costa Canal Replacement Project, Segment 2. This Finding of No Significant Impact (FONSI) is supported by Reclamation's Supplemental Environmental Assessment (SEA) 13-019, *Contra Costa Canal Replacement Segment 2*, which is hereby incorporated by reference.

Reclamation provided the public an opportunity to comment on the draft SEA and FONSI between July 16, 2013 and August 15, 2013. No comments were received.

## Background

On July 11, 2007, Reclamation, in coordination with the Contra Costa Water District (CCWD) issued Environmental Assessment (EA) and FONSI 07-05-MP for the Contra Costa Canal Replacement Project (CCCRP) (Reclamation 2007). The CCCRP involved installing up to 3.97 miles of buried ten-foot diameter pipe in place of the existing unlined portion of the Contra Costa Canal (Canal) between the headworks near Rock Slough and Pumping Plant 1 (PP1). CCWD also prepared a Mitigated Negative Declaration (SCH # 200604082) under the California Environmental Quality Act (CEQA) for the proposed improvements.

In 2009, CCWD completed Segment 1 of the CCCRP, enclosing a 1,900 foot length of the unlined Canal from west of Marsh Creek to the forebay in front of PP1. To facilitate that segment's construction CCWD completed two addenda to the original CEQA Mitigated Negative Declaration. The first addendum documented use of a pump-around system to deliver water to customers during construction during Segment 1. The second addendum described CCWD's plan for use of offsite fill for construction of Segment 1. Since neither project modification required Reclamation approval, no changes were made to the EA.

CCWD has now received a grant through the California Department of Water Resources (DWR) under the Disaster Preparedness and Flood Prevention Bond Act of 2006. This will allow CCWD to complete a second segment of the CCCRP, as well as make additional improvements not considered in the original evaluation. The proposed second segment of Canal replacement will be 5,500 feet in length, from the terminus of Segment 1 near Marsh Creek to the east, approximately 500 feet beyond Sellers Avenue. The Canal replacement will be consistent with the CCCRP as evaluated and approved previously; however, additional elements have been incorporated into this proposed project, including:

- Installation of a flood isolation structure near the Rock Slough Fish Screen (RSFS)
- Implementation of a groundwater management (dewatering) program
- Installation of a new turnout system at Pumping Plant 4 (PP4)

The modifications to the project beyond the original EA and subsequent minor modifications required additional evaluation in the form of a SEA to determine whether the original FONSI

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remains valid. CCWD has also prepared a third addendum to the Mitigated Negative Declaration.

## **Proposed Action**

Reclamation proposes to authorize CCWD's modifications to the previously-approved CCCRP. These include addition of:

- A flood isolation structure,
- A new turnout system at PP4, and
- A groundwater management program.

The proposed additions are described below.

### ***Flood Isolation Structure***

CCWD will install a flood isolation structure near the Rock Slough headworks. The structure will allow the Canal to be closed off from the Sacramento/San Joaquin River Delta (Delta) during high water events, reducing the potential for property damage.

During installation of the flood control structure, the work area will be isolated from the Delta by inserting stop logs in the Rock Slough headworks structure and installing a primary coffer dam upstream of the headworks. A second coffer dam will also be installed downstream of the primary Canal isolation coffer dam, and water will be pumped out of the isolated section. Once water levels are low enough, fish will then be rescued from the isolated segment, and the work area will be dewatered by pumping to the unlined Canal or the area behind the RSFS.

Access to the flood isolation structure construction site will be from East Cypress Road and the existing access road along the north levee.

### ***New Turnout System***

A new turnout system will be constructed at PP4 to provide untreated water supply reliability to CCWD municipal and irrigation customers that divert water from the Canal between PP1 and PP4. The new turnout will allow water from the canal supplied by the Old River and Middle River intakes and the Los Vaqueros Reservoir to be delivered by a gravity flow bypass (backflow) system to the Canal upstream of PP4. A 24-inch buried pipeline will be constructed within the Reclamation right-of-way and CCWD-owned land, and will tie into existing Canal facilities.

A new isolation plate will also be constructed on the pipeline that terminates at the PP1 forebay. Water within the PP1 forebay could then be pumped back towards PP4, allowing water in the lined portion of the Canal to circulate. This will improve water quality and aesthetics within this section of the Canal by preventing stagnant water and solids build-up.

### ***Groundwater Management***

For Segment 2, CCWD proposes to install shallow dewatering wells (spread 30 to 50 feet apart) within the Canal project work area, which will deliver groundwater to a series of collection pipes. The wells and pipes will be located within the Canal right of way, preferably within the

Canal prism. Flows could approach up to 10 million gallons per day (mgd) instantaneous flow rate, with a monthly average of approximately 5 mgd and an average electroconductivity (EC, a common way of estimating salt content) as high as 4,000 µS/cm. To the extent practicable, the water will then be delivered to adjacent properties for irrigated agriculture. If land application is not feasible due to handling constraints of adjacent property owners or unsuitable (wet) weather, CCWD is proposing to divert excess water into the unlined Canal upstream of the project’s isolation coffer dams. A discharge permit (Limited Threat General Order R5-2013-0073-029) has been obtained from the Central Valley Regional Water Quality Control Board (CVRWQCB) for this diversion.

**Permitting**

During construction of Segment 1, CCWD obtained a permit for land application of the groundwater to adjacent lands, primarily the DWR Emerson property. On June 19<sup>th</sup>, 2013, the CVRWQCB authorized land application for Segments 2 through 5 of the CCCRP under General Order 2003-0003-DWQ-0043. The properties where CCWD is proposing land application are shown in Figure 3-1 of SEA 13-019.

CCWD anticipates that not all of the groundwater removed from the Canal could be land applied, and some excess water may need to be discharged within the Canal and Rock slough at the RSFS. CCWD has obtained a Limited Threat Discharge permit from CVRWQCB for this discharge.

**Environmental Commitments**

CCWD will implement the following environmental protection measures to reduce environmental effects associated with the Proposed Action (Table 1). Environmental effects for resource areas assume the measures specified will be fully implemented. Copies of all reports will be submitted to Reclamation.

Commitments adopted in the original EA remain as described therein, except as modified below.

**Table 1 Additional Environmental Protection Measures and Commitments**

<b>Resource</b>	<b>Protection Measure</b>
Land Use	Groundwater shall not be land applied at rates that would cause flooding.
Water, Biological	Discharges at the Rock Slough Fish Screen shall comply with the Limited Threat Discharge permit issued by CVRWQCB.
Cultural Resources	If human remains or previously unidentified cultural resources are discovered, work in the area of the discovery will stop immediately and Reclamation’s regional archaeologist will be contacted to determine how to proceed.

In addition, the work restrictions put in place to protect listed fish species have been lifted, as the fish screen at Rock Slough now provides adequate protection.

**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.

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**Water Resources**

The CCCRP as described in the original EA provides a benefit to water quality, since it reduces the influence of saline groundwater on the Canal. It will also reduce the potential for formation of undesirable disinfection byproducts.

The proposed flood control structure is not expected to affect water quality, but it will affect hydrology by limiting the potential for floodwater to overtop the Canal and cause property damage.

The proposed turnout at PP4 will allow CCWD to continue water service to customers between PP1 and PP4 during maintenance events. Reducing the potential for service disruption is a benefit to the water users. Water quality is also expected to improve, since the proposed improvements will allow CCWD to circulate water in the Canal system and reduce problems associated with stagnant water, such as odor and solids buildup.

The proposed groundwater pumping has the potential to affect water resources, as it will require the discharge of millions of gallons of water known to have high EC. During construction of Segment 1, CCWD obtained a permit for land application of the groundwater to adjacent lands, primarily the DWR Emerson property. On June 19<sup>th</sup>, 2013, the CVRWQCB authorized land application for Segments 2 through 5 of the CCCRP under General Order 2003-0003-DWQ-0043. Anticipated water volumes relative to land capacity to receive the water are shown in Table 2.

**Table 2 Groundwater Volume Estimates**

	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
Peak Groundwater Dewatering Rate (mgd)	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
Land Application Disposal Capacity (mgd)	2.42	3.07	3.59	3.97	3.82	3.19	2.47	2.18
Excess for Discharge to Rock Slough (mgd)	2.58	1.93	1.41	1.03	1.18	1.81	2.53	2.82
Excess for Discharge to Rock Slough (mgd) ROUNDED	3.0	2.0	2.0	2.0	2.0	2.0	3.0	3.0

Source: CCWD. Assumes a “wet” water year as a conservative case. Excess volumes are rounded up.

Segment 2 groundwater volumes are estimated to be approximately 5 mgd peak monthly flows, which could exceed land application capacity. If more water is produced by groundwater pumping than can be land applied or stored, it will either be directed to the unlined Canal downstream of the RSFS, or pumped upstream of the Rock Slough headworks, where it will mix with Rock Slough. CCWD has been issued a permit by CVRWQCB for the discharge to Rock Slough (see Appendix E in SEA 13-019).

In accordance with CVRWQCB Order # R5-2008-0081, *Waste Discharge Requirements for Dewatering and Other Low Threat Discharges to Surface Waters*, the discharge of pollutants from dewatering and other low threat discharges may not exceed certain effluent limitations. Because the shallow groundwater is known to have elevated EC, CCWD conducted an analysis to determine whether the proposed discharges will have the potential to exceed CVRWQCB’s standards (CCWD 2013).

CCWD considered two scenarios in estimating the effects of discharging the shallow groundwater into the Canal or Rock Slough. In the worst-case (highest-concentration) scenario, the excess groundwater will be directed through a diffuser system to the RSFS afterbay while the Canal was isolated at the headworks. In this case, the mixing area for the discharged water would be 200,000 square feet. In the second scenario, the groundwater would be discharged to the unlined Canal near the cofferdam at Sellers Avenue. The added length of 12,500 feet of Canal would result in a total mixing area of 1,125,000 square feet.

CCWD assumed a maximum EC of 4,000  $\mu\text{S}/\text{cm}$  (the highest EC recently measured nearby) in the groundwater to be discharged, and modeled tides based on current forecasts through 2015. Based on these conditions, CCWD determined that in the worst-case scenario (200,000 square foot mixing zone), mixing would reduce groundwater EC from 4,000  $\mu\text{S}/\text{cm}$  to monthly averages ranging from 860  $\mu\text{S}/\text{cm}$  in August 2015 to 1,124  $\mu\text{S}/\text{cm}$  in October 2014 at the Rock Slough (“RSL”) monitoring station 1,340 feet (~1/4 mile) from the RSFS. In the case where a larger mixing zone is available, measured EC would be lower. CCWD has obtained a Limited Threat Discharge permit from the CVRWQCB for this discharge.

All groundwater discharged to surface water will be monitored at the point of discharge, the RSFS, and the Delta Road Bridge/RSL location to ensure compliance with permitted effluent limitations.

### **Land Use**

The proposed flood isolation structure will protect properties adjacent to the Canal from flood damage in case of a high water event in the Delta. Reducing the potential for flood damage to residences, farms, and other land uses in the area is a benefit.

The proposed turnout structure would provide additional operational flexibility to CCWD and allow delivery of water to customers between PP1 and PP4 during maintenance. This would reduce inconvenience and operational disruptions to those customers, and support existing land uses.

If water produced from dewatering the Canal is made available to adjacent farm owners, it will likely be provided for less than what an equivalent volume of water would cost on the open market. This would support existing land uses by helping the profitability of those farms.

### **Biological Resources**

Due to the installation of the RSFS, the need for restrictions on work to protect listed fish species would be removed. Although turnout and pipeline construction could result in minor effects to upland species, such as kit foxes or burrowing owls, applicable measures from FONSI-07-05-MP would be implemented to minimize those effects. Minor impacts due to increased salinity could occur due to discharge of groundwater into the Canal or Rock Slough.

Longfin smelt adults and juveniles can be found at salinities ranging from freshwater to nearly seawater, although once past the early juvenile stages most prefer salinities ranging from 15–30 parts per thousand (ppt) (Moyle 2002). Delta smelt salinity tolerance varies with life stage. CDFW et al. (2010) reports the salinity tolerance of eggs and larvae ranges from freshwater to 5

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ppt. Delta smelt spawning areas are far removed from the project area, therefore, no effect from groundwater salinity is expected for delta smelt eggs. During the time that delta smelt larvae could be present (February through June), they could be affected if salinity exceeds 5 ppt<sup>1</sup> within any portion from the Rock Slough Fish Screen (RSFS) to the 1,340 foot mixing boundary. However, based on the calculations, CCWD expects that the salinity will not be above 1.5 ppt in the mixing zone at any time. The upper salinity tolerance of juvenile and sub-adult delta smelt is 19.1 ppt  $\pm$  2.1 (Swanson et al. 2000). Therefore, juvenile and adult delta smelt would not be affected by an increase in salinity from routing groundwater into the RSFS afterbay. Longfin smelt larvae and juveniles have been collected in samples with salinities up to 15 ppt, and therefore it is unlikely that they would be affected by groundwater discharge.

Routing the higher-salinity groundwater to the RSFS afterbay is not expected to adversely affect the anadromous species; mean maximum monthly salinity would be well under 2 ppt.

On July 11, 2013, the National Marine Fisheries Service (NMFS) concurred with Reclamation's determination that the changes in the Proposed Action were not likely to adversely affect Federally listed anadromous fishes or their critical habitat, or Essential Fish Habitat. On September 9, 2013, the USFWS confirmed that the changes to the Proposed Action did not increase the adverse effects on the delta smelt or its critical habitat, and they concurred with the new determination that the Proposed Action is not likely to adversely affect the giant garter snake. The terms and conditions for the giant garter snake were thereby removed from the original project description. All other effects and terms and conditions of the previous consultation remain in effect. On August 29, 2013, the Service confirmed that no additional work was needed under the Fish and Wildlife Coordination Act. See Appendix D of the SEA for consultation correspondence.

### **Cultural Resources**

Under the Proposed Action, the flood isolation structure, the new turnout system, and groundwater management will have no adverse effects to historic properties. None of the activities associated with the additional elements will affect the characteristics that make the Contra Costa Canal eligible for listing on the National Register. No other historic properties are present within the revised Area of Potential Effects that includes the additional elements.

If human remains or previously unidentified cultural resources are discovered, work in the area of the discovery will stop immediately and Reclamation's regional archaeologist will be contacted to determine how to proceed.

### **Socioeconomic Resources**

The proposed flood isolation structure will protect properties adjacent to the Canal from flood damage in case of high water in the Delta. Reducing the potential for flood damage to residences and farms is an economic benefit.

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<sup>1</sup> The salinity tolerance range was reported in DFW et al. 2010 and was based on life history information and DFW catch data.

The proposed turnout structure will provide additional operational flexibility to CCWD and allow delivery of water to customers between PP1 and PP4 during construction and maintenance. This will reduce inconvenience and operational disruptions to those customers.

If water produced from dewatering the Canal is made available to adjacent farm owners, it will likely be provided for less than what an equivalent volume of water would cost on the open market. This would help the profitability of those farms.

**Air Quality**

CCWD’s CEQA Addendum 3 (Addendum) included an estimate of air emissions that will be produced by construction of Segment 2. These anticipated emissions, in pounds per day, are shown below in Table 3. Emission estimates account for material delivery, trenching/pipe laying, earth moving/compaction, and service road construction.

**Table 3 Construction Phase Emissions, Average Pounds per Day**

	<b>Reactive Organic Gases</b>	<b>Carbon Monoxide</b>	<b>Nitrous Oxides</b>	<b>PM10</b>	<b>PM2.5</b>	<b>Carbon Dioxide</b>
Segment 2	4.3	19.4	48.2	3.9	2.2	4,877
Threshold	54	0	54	82	54	0

Source: M. Papineau, 10.23.12/RCEMv7.1.2 modeling by CCWD. Thresholds from proposed 2010 Bay Area Air Quality Management District guidelines.

While emissions from the additional project elements covered by this SEA are not separately identified in the Addendum, they can be approximated using earthwork quantities as a surrogate. CCWD has estimated that total imported fill for the modified project is 83,000 cubic yards (cy). Of the total, 75,000 cy of fill will be necessary for the pipeline replacement and 8,000 cy will be needed for the flood control structure. Therefore, construction of the flood control structure can be expected to account for slightly less than 10% of total emissions. While the emissions from construction of the PP4 turnout are not as straightforward to quantify, the scope of that portion of the project is very minor compared to the larger CCCRP, and its emissions should also be minor. It is not expected that construction of the CCCRP, either as originally proposed or as modified by this SEA, will exceed the proposed 2010 Bay Area air Quality Management District guidelines.

Pumps for groundwater removal will use electricity from the power grid. Since the power grid is interconnected, the electricity used could be generated in any of a variety of locations from a variety of sources. Therefore it is not possible to estimate emission quantity or location with certainty. However, emissions from power plants are highly regulated, and it is expected that emissions will conform to local air regulations at the point of production. In the event of power loss, it may be necessary to operate diesel backup generators to continue pumping, which would result in a temporary and short-term increase in emissions. Efforts will be made to minimize the duration of diesel-powered pumping.

**Energy Use and Global Climate**

As described above in the Air Quality Section, construction of the flood isolation structure should account for roughly 10% of total construction emissions. With pipeline installation estimated to produce between 900 and 1,000 metric tons of carbon dioxide, construction of the

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flood isolation structure will contribute an additional 100 to 110 metric tons of carbon dioxide. The total tonnage of carbon dioxide is far below the 25,000 metric ton threshold for significant emissions of GHG.

CCWD estimates that 100-horsepower groundwater pumps will need to operate 10 full days per month for 10 months of construction per year, for total power usage of approximately 250,000 kilowatt-hours over the course of the year. Based on an average blended emission rate for the Pacific Gas and Electric service area, this corresponds to 62.5 tons of carbon dioxide per year. Backup diesel generators will also be available to allow pumping to continue during power outages. CCWD has determined that if the generators are needed as much as 5% of the time (120 hours per year), they will produce 10.2 tons of carbon dioxide. These amounts are also far below what is considered a meaningful source of GHG emissions.

**Cumulative Impacts**

*Water Resources*

Various maintenance and improvement projects are underway or proposed for the Contra Costa Canal. Most are physically far from this project area or are otherwise not expected to affect conditions in the waterway. Three actions under consideration by CCWD and Reclamation are in the project area, however.

The first is operation of the Fish Screen at Rock Slough. The Fish Screen was analyzed under EA 09-061 and began operation in August of 2011. Reclamation is currently preparing EA 11-061 to evaluate transfer of Fish Screen Operations and Maintenance responsibilities to CCWD. The purpose of the fish screen is to limit entry of fish into the Canal. This reduces the potential for harm to protected species caused by operation and modification of the Canal such as the Proposed Action. In this respect, the projects are complementary.

Another action in this section of the Canal is a proposal to manage nuisance vegetation in the forebay of PP1 through application of the aquatic herbicide Komeen™. Reclamation evaluated the proposal and prepared a Categorical Exclusion Checklist, CEC 12-066, which was approved on July 30, 2013. Although both actions (the construction and herbicide application) have the potential to affect water quality on their own, cumulative impacts are unlikely. The forebay would be isolated from the canal during construction by cofferdams, so the herbicide-treated water would not have the potential to mix with any saline groundwater being discharged to the Delta.

Brookfield Homes has requested a Central Valley Project (CVP) inclusion review for the 140 acre Emerson Parcel, which is located south of the Canal and east of Sellers Avenue in Oakley. The CEQA review for this inclusion was completed in August 2010 by the City of Oakley. It is currently being reviewed by Reclamation and an EA (13-032) is being prepared. The project includes 578 single family residences and a commercial area. Construction is anticipated to commence in late 2013 or 2014. CCWD will be coordinating its Canal construction with this proposed construction in order to avoid cumulative impacts.

Beyond projects within the Canal, the Delta is affected by a wide variety of actions by public agencies and private entities which are complex, far-ranging, and sometimes in conflict. Delta

water flows are determined by historic water rights, long-term regulatory requirements, yearly allocations and numerous exchanges, transfers, and assignments that are negotiated on an as-needed basis. Water quality is affected by historic and current upstream land uses such as mining, farming and urban development.

DWR's Dutch Slough Tidal Marsh Restoration Project is planned for the area just to the north of the Canal. DWR plans to restore over 1,600 acres of tidal wetland and create a 55-acre park, trails and access to the Delta (DWR and CSCC 2008). Although the impacts and benefits of the Restoration Project are still being evaluated, it is likely that the hydrology of the area will change. One of the purposes for the CCCRP is to reduce the potential for these hydrologic changes to affect the Canal. This action and the Proposed Action together are not expected to have any cumulative effects on the Delta or other water resources.

#### *Land Use*

Reduced flood risk and reliable water service make property more attractive for development. Much of the area adjacent to the Canal is already zoned for residential subdivisions, so the Proposed Action is complementary with local land use plans. Any changes to zoning or land use would be a local decision which balances a variety of considerations.

#### *Biological Resources*

Cumulative impacts to biological resources will occur as described in EA-07-05-MP, with the exception that impacts to species from the construction of Segment 1 have now occurred and ongoing operational impacts to listed fishes are reduced compared to what they had previously been, due to the construction of the Rock Slough Fish Screen. As the giant garter snake has subsequently been determined to be extremely unlikely to occur in the Proposed Action Area, the Proposed Action will not adversely affect this species, and will not contribute to any cumulative impacts on that species. Overall the proposed changes and additions to the project are not anticipated to introduce new cumulative effects above what has already been evaluated.

#### *Greenhouse Gases*

While the emissions from one project would not adversely affect the global climate, cumulative GHG emissions from multiple projects and sources throughout the world could result in an adverse impact with respect to climate change. The total CO<sub>2</sub> emissions that are estimated to be produced as a result of the Proposed Action are far below the 25,000 metric tons per year threshold for reporting GHG emissions. In the overall context of contributions to global climate change, this action would not be a significant source or contributor.