RECLAMATION
Managing Water in the West

Draft 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 still not required for the Contra Costa Canal Replacement Project, Segment 2. This Finding of No Significant Impact is supported by Reclamation's Environmental Assessment (EA) 13-019, *Contra Costa Canal Replacement Segment 2*, which is hereby incorporated by reference.

Background

On July 11, 2007, the Bureau of Reclamation (Reclamation), in coordination with the Contra Costa Water District (CCWD) issued Environmental Assessment (EA) and Finding of No Significant Impact (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 would 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 would be consistent with the CCCRP as evaluated and approved previously. However, additional elements have been incorporated into the project, as follows:

- 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)

These modifications to the project description required additional evaluation in the form of a Supplemental Environmental Assessment (SEA) to determine whether the original FONSI 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 would install a flood isolation structure near the Rock Slough headworks. The structure would allow the Canal to be closed off from the Delta during high water events, reducing the potential for property damage.

During installation of the flood control structure, the work area would 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 would also be installed downstream of the primary Canal isolation coffer dam, and water would be pumped out of the isolated section. Once water levels are low enough, fish would then be rescued from the isolated segment, and the work area would be dewatered by pumping to the unlined Canal or the area behind the RSFS.

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

New Turnout System

A new turnout system would 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 would 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 would be constructed within the Reclamation right-of-way and CCWD-owned land, and would tie into existing Canal facilities.

A new isolation plate would 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 would 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 would deliver groundwater to a series of collection pipes. The wells and pipes would be located within the Canal right of way, preferably within the Canal prism. Flows could approach up to 10 mgd (instantaneous flow rate), with a monthly

average of approximately 5 mgd and an average electroconductivity (EC) as high as 4,000 µS/cm. To the extent practicable, the water would 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 19th, 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.

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 CVRWCB for this discharge.

Environmental Commitments

CCWD would implement the following environmental protection measures to reduce environmental consequences associated with the Proposed Action (Tables 2-1 and 2-2). Environmental consequences for resource areas assume the measures specified would be fully implemented. Copies of all reports would be submitted to Reclamation.

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

Table 0-1 Additional Environmental Protection Measures and Commitments

Resource	Protection Measure
	(Pending Consultation)

Table 0-2 Environmental Protection Measures and Commitments Modified From the EA

Resource	Protection Measure
	(Pending Consultation)

Reclamation's South-Central California Area Office has initiated an Environmental Commitment Program in order to implement, track and evaluate the environmental commitments developed for the Proposed Action.

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.

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 would also reduce the potential for formation of undesirable disinfection byproducts.

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

The proposed turnout at PP4 would 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 would 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 would 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 19th, 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 1 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 would either be directed to the unlined Canal downstream of the RSFS, or pumped upstream of the Rock Slough headworks, where it would

mix with Rock Slough. CCWD has been issued a permit by CVRWQCB for the discharge to Rock Slough (see Appendix D).

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 would 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 would 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 µS/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 µS/cm to monthly averages ranging from 860 µS/cm in August 2015 to 1,124 µS/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 much lower. CCWD has applied for a Limited Threat Discharge permit from the CVRWQCB for this discharge.

All groundwater discharged to surface water would 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 would 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.

If water produced from dewatering the Canal is made available to adjacent farm owners, it would 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.

Biological Resources

Under the Proposed Action Alternative, unnecessary restrictions on work because of listed fish species would not have to be implemented. Turnout and pipeline construction could result in

minor impacts to upland species, such as kit foxes or burrowing owls, but applicable measures from FONSI-07-05-MP would still be implemented to minimize those impacts. 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 ppt. Delta smelt salinity tolerance varies with life stage. DFW and others report the salinity tolerance of eggs and larvae ranges from freshwater to 5 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[1] within any portion from the Rock Slough Fish Screen 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 ±2.1. Therefore, juvenile and adult delta smelt would not be affected by an increase in salinity from routing groundwater into the Rock Slough Fish Screen 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 routing.

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

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 APE that includes the additional elements.

Socioeconomic Resources

The proposed flood isolation structure would 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.

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

If water produced from dewatering the Canal is made available to adjacent farm owners, it would 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.

[1] The salinity tolerance range was reported in DFW et al. 2010 and was based on life history information and DFW catch data.

Air Quality

CCWD's CEQA Addendum 3 included an estimate of air emissions that would 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 2 Construction Phase Emissions, Average Pounds per Day

	Reactive Organic Gases	Carbon Monoxide	Nitrous Oxides	PM10	PM2.5	Carbon Dioxide
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 BAAQMD 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 would be necessary for the pipeline replacement and 8,000 cy would 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, would exceed the proposed 2010 BAAQMD guidelines.

Pumps for groundwater removal would 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 would 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. Efforts would 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 flood isolation structure would contribute an additional 100 to 110 metric tons of carbon dioxide. This is far below the threshold for significant emissions of GHG.

CCWD estimates that 100-horsepower groundwater pumps would 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 would 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 would 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 nearby, however.

The first is operation of the Fish Screen at Rock Slough. The Fish Screen was approved under EA 09-061 and went into operation in August of 2011. Reclamation is currently preparing EA 11-061 to evaluate transfer of 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.

The second 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 is evaluating the proposal under a Categorical Exclusion Checklist, CEC 12-066. Although both actions 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.

Third, Brookfield Homes has requested 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, and it is currently being reviewed by Reclamation as EA 13-032. 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.

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. 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. Through the Restoration Project, DWR plans to restore over 1,600 acres of tidal wetland and create a 55-acre park, trails and access to the Delta. 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. The two actions 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 would 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.