

RECLAMATION

Managing Water in the West

Draft Environmental Assessment

Renewal of Authorization for Department of Water Resources to Store Dredged Material on Reclamation Property

EA-11-007



U.S. Department of the Interior
Bureau of Reclamation
Mid Pacific Region
South-Central California Area Office
Fresno, California

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Mission Statements

The mission of the Department of the Interior is to protect and provide access to our Nation's natural and cultural heritage and honor our trust responsibilities to Indian Tribes and our commitments to island communities.

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

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Section 1 Introduction

1.1 Background

The South Delta Temporary Barriers Project (TBP), initiated as a test project in 1991, was partially in response to a lawsuit filed by the South Delta Water Agency (SDWA). The suit alleged that operations by the Department of Water Resources (DWR) and the Bureau of Reclamation (Reclamation) on the San Joaquin River reduced the quantity and quality of waters flowing from the San Joaquin River to the south Delta, and that that operation of the State Water Project (SWP) and Central Valley Project (CVP) pumps lowered water levels, reversed flows, and diminished the influence of the tides (DWR 2000). The Central Valley Project operations benefit from DWR's implementation of the TBP.

The TBP consists of four rock barriers across South Delta channels that are in place only at certain times of the year. In various combinations, these barriers improve South Delta water levels, water circulation, and conditions for San Joaquin River salmon migration. Of the four temporary rock barriers, the first is at the head of Old River, and is installed twice each year: in the spring, typically from April 15th to May 15th, and in the fall between September 15th and November 30th. This barrier has been in place most years since 1963. The barrier installation and removal dates are based on the US Army Corp of Engineers 404 Permit, the California Department of Fish and Wildlife (CDFW, formerly Department of Fish and Game, CDFG) 1601 Permit, the Central Valley Regional Water Quality Control Board, the conditions imposed by the Fish and Wildlife Service and National Marine Fishery Service biological opinions, and various Temporary Entry Permits required from landowners and local reclamation districts.

An alternative to the Spring Head of Old River rock barrier is a non-physical barrier. The non-physical barrier consists of a multi-stimulus fish barrier, comprising a Bio-Acoustic Fish Fence (BAFFtm) with a strobe-lit bubble curtain. The BAFFtm is a patented device developed by Fish Guidance Systems which combines acoustic stimuli with a bubble curtain to create a "wall of sound" at frequencies and levels that are repellent to fish. The non-physical barrier was pilot tested in 2009 and 2010, but was not used in 2011 because flows in the San Joaquin River were too high. The remaining three barriers are classified as agricultural barriers because their primary beneficiaries are agricultural water users in the South Delta. These barriers are located on Old River, Middle River and Grant Line Canal, typically between April 15th and November 30th of each year (DWR 2000). Extensive studies are performed each year to evaluate migration conditions for San Joaquin River salmon and steelhead when the barriers are in place. The TBP continues to be implemented annually as an interim solution to water levels and circulation until a permanent solution can be implemented (DWR 2013).

Over time, silt and debris can settle at various locations in the area waterways. When this material buildup becomes excessive, it can affect flood control efforts, levee stability, Delta channel navigation function, recreational opportunities and water quality/quantity for downstream users. DWR addresses these problems by removing channel bottom sediment on an

as-needed basis. After removal from the waterway, dredge spoils are stored and dried until a beneficial reuse is found.

Due to restrictions by the Central Valley Regional Water Quality Control Board (RWQCB), DWR can only place dredge spoils in locations that have been approved by the Regional Board through their General Order Waste Discharge Requirements (DWR and Reclamation 2005). In August 2000, DWR obtained General Order No. 5-00-183 under California Water Code Section 13263. This allowed DWR to place dredged material on the Bureau of Reclamation's land at the west end of Fabian Tract, a 34.4 acre parcel of land located in San Joaquin County, California, at the intersection of the Delta Mendota Canal (DMC) and Grant Line Canal southeast of the Clifton Court Forebay (see Figures 1-1 and 1-2). The Fabian Tract property is also known as Parcel APN 189-050-18, or Settlement Pond #1.

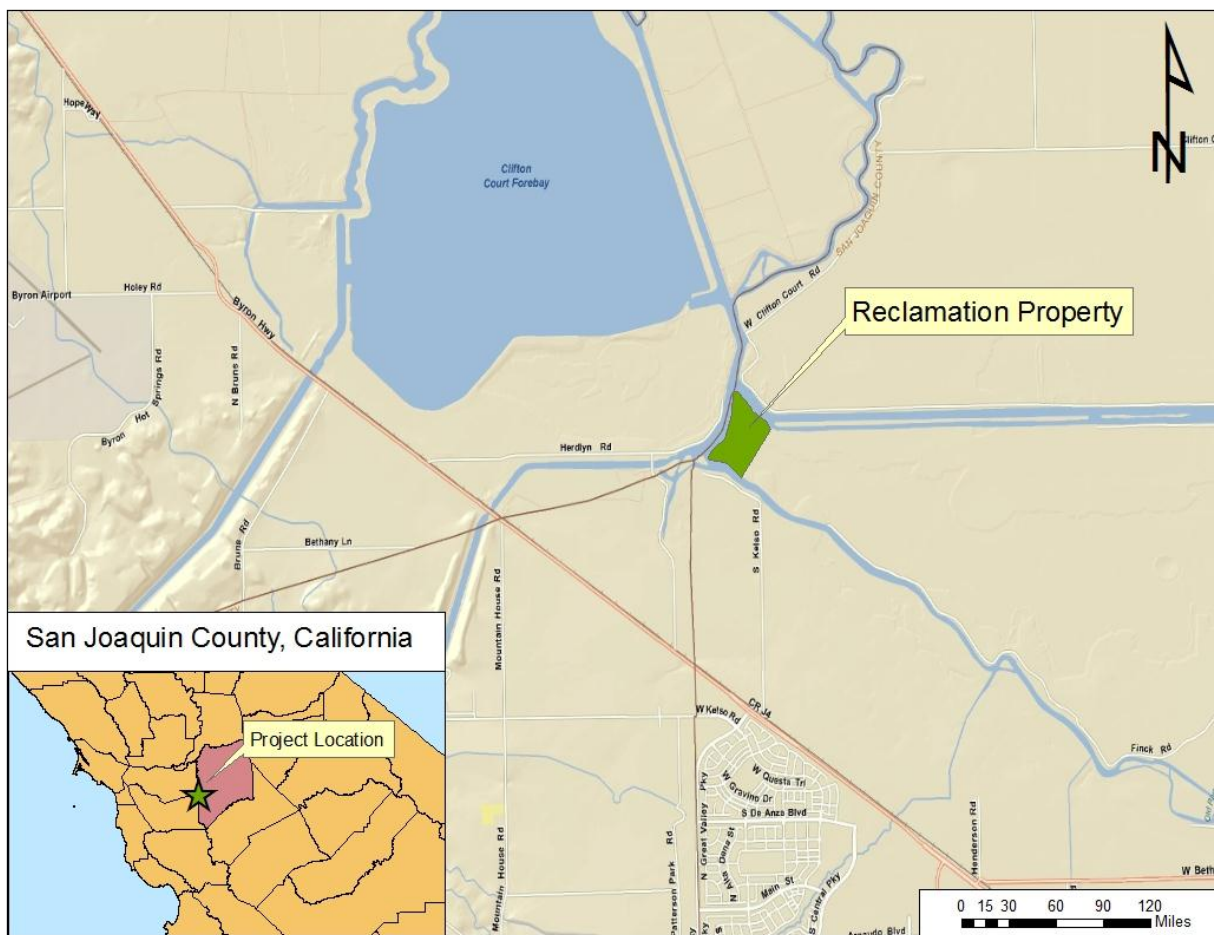


Figure 1-1 Project Location

Following issuance of the General Order in 2000, settling ponds were constructed at the site to receive dredged material. These ponds were designed for “hydraulic dredging”. With this dredging method, a floating hydraulic cutter-head suction dredge churns up the channel bottom sediment with a cutter head and then sucks the churned sediment and water into a conveyance pipe which transports the water-laden sediment to the dredge spoils disposal site. Excess water

is then decanted and returned to the river channel. From August to November 2000, approximately 70,000 cubic yards (cy) of dredged material was removed from around Hammer Island and the Rivers End Marina/Livermore Yacht club, and managed in these ponds.



Figure 1-2 Project Location and Surrounding Waterways

The 2004 and 2005 dredging projects were much smaller in size and consisted of localized dredging of sediment that had blocked farmers' irrigation siphons. Instead of hydraulic dredging, these operations made use of a "clamshell dredge", which is conducted using an environmental clamshell bucket mounted on a dredging barge. The barge is held in place using retractable legs ("spuds") that are lowered into the channel bottom. Sediment is excavated and placed in a second barge, which transports the material to an unloading site (see Figures 2-2 and 2-3).

The 2004 project involved removal of approximately 31,000 cy from the west end of Union Island in Old River, northeast of Coney Island. The 2005 project involved removal of approximately 7,000 cy to the south of the 2004 area on Old River, south and southeast of Coney Island. Since the clamshell method does not produce free liquids, the majority of the berms put in place in 2000 were removed.

DWR would like to be prepared for anticipated future dredging needs. These future dredging activities could involve anywhere from a few hundred cubic yards up to tens of thousands of cubic yards. New dredging would likely be located along Old River, Middle River and/or Grant Line Canal in the South Delta. Due to permit restrictions, dredging would only take place in a limited dredging window from August 1st through November 30th. Either hydraulic or clamshell dredging could be used. In order to be prepared for these anticipated future needs, DWR is requesting renewal of the existing land use authorization with Reclamation to allow storage of dredged materials on Parcel No. 189-050-18.

1.2 Purpose and Need

When DWR dredges South Delta channels they will need a location to store the dredged material until it can be beneficially reused. DWR also has an ongoing need to maintain barriers in the channels. The previous land use authorization (Number 00-LC-20-7443) for these purposes has expired, and DWR would like to renew the authorization for another five years.

The purpose of this action is to allow DWR access to Reclamation property for material storage associated with dredging projects and/or barrier maintenance.

1.3 Scope

This Environmental Assessment (EA) addresses the potential direct, indirect and cumulative impacts of allowing access to Reclamation's Fabian Tract property (shown in Figures 1-1 and 1-2) for barrier maintenance and dredged sediment storage. The duration of the proposed land use authorization renewal is five years.

This EA does not include evaluation of the environmental impacts of the TBP or of actual dredging, as those are analyzed elsewhere (DWR 2000, DWR and Reclamation 2005, NMFS 2012, DWR 2013). Although those actions are related, they are not caused by Reclamation's authorization and would be necessary even if Reclamation declined to allow spoils to be placed on the Fabian Tract property. Environmental documentation for those actions is the responsibility of DWR.

1.4 Resources Requiring Further Analysis

This EA will analyze the affected environment of the Proposed Action and No Action Alternative in order to determine the potential direct, indirect, and cumulative effects to the following resources:

- Water Resources
- Land Use
- Biological Resources
- Air Quality
- Global Climate

Section 2 Alternatives Considered

This EA 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

If Reclamation were to not renew the authorization to place dredged material on Reclamation land, DWR would need to enter into an agreement with other property owners to store the material. This could be difficult, time-consuming and expensive, depending on the availability of suitable land. Delays in conducting necessary dredging could result in legal action against DWR and Reclamation for failure to maintain the waterways for beneficial uses.

2.2 Proposed Action

Reclamation proposes to issue a land use authorization to DWR for storage of dredged material from nearby waterways on Reclamation property. Reclamation would also give permission for DWR to use the property for access to install, remove and maintain temporary barriers in adjacent waterways. Although future dredging needs are still uncertain, DWR wants to be prepared so that problems can be dealt with in a timely manner.

Temporary Dock and Storage Cell Construction

In order to prepare the site, a bulldozer and grader would be used to build haul roads and pre-excavate cells where spoils would be placed. A temporary off-loading facility would also be constructed onsite to receive barges and facilitate loading of dump trucks. During previous dredging projects the off-loading facility consisted of a ramp cut into the levee leading to another barge, moored in place in the waterway (see Figures 2-1 and 2-2). It is anticipated that the same method and location would be used for future offloading needs. In order to avoid resource impacts, the dock would only be in place between August 1 and November 30.



Figure 2-1 Previous Site Improvements



Figure 2-2 Previous Temporary Dock

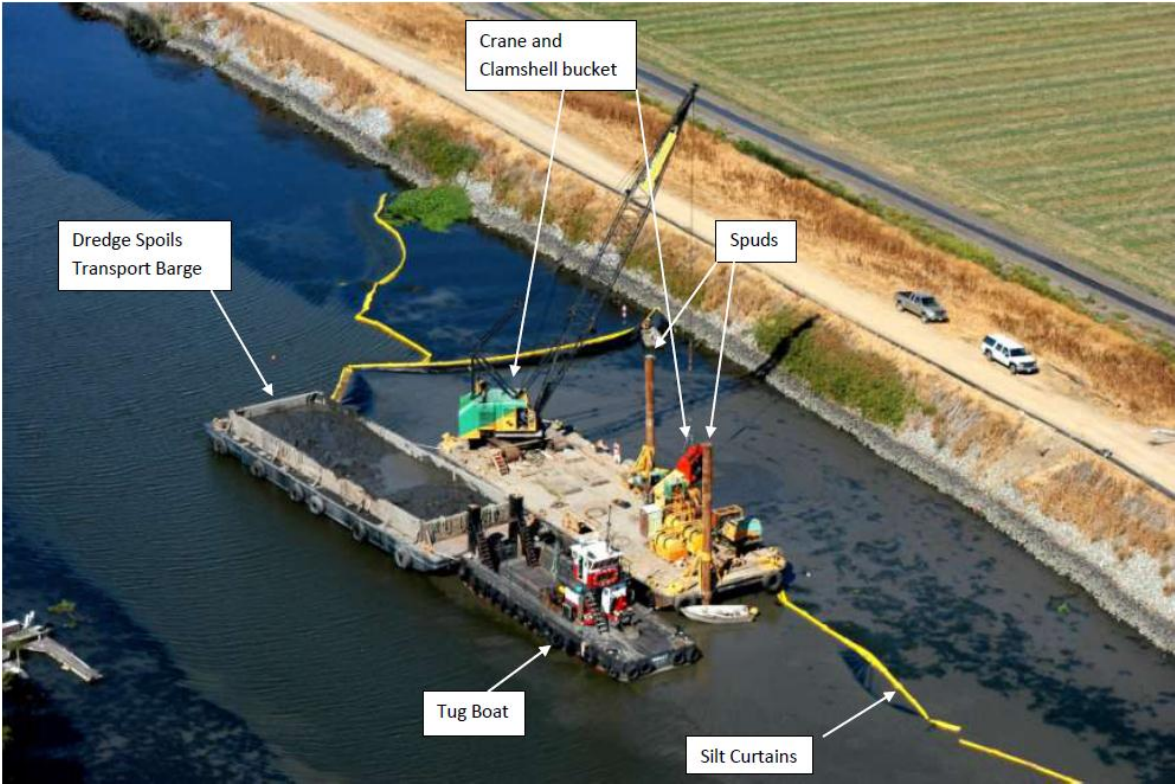


Figure 2-3 Clamshell Dredging Equipment

Dredge Spoil Placement

Following barge delivery of the dredge spoils to the temporary loading dock, an excavator would load the material into trucks which would then deliver the material to the storage site by way of the temporary haul roads and/or Fink Road. DWR plans to continue to fill from the north end of the site to the south, starting near where spoils from earlier dredging activities were placed. The silt would be neatly spread out or stockpiled to ensure a maintained appearance and discourage unauthorized dumping.

Once in place, the sediment would be allowed to dry. When it meets applicable requirements, it would either be used in place for beneficial purposes or would be removed and transported by truck to other upland sites for reuse.

Land-based equipment to be used would include a grader, bulldozer, dump trucks, track excavator and water truck. Equipment would be stored and operated on Reclamation property while a dredging project is underway. DWR would be responsible for maintaining the site and complying with all permit requirements.

2.2.1 Permitting

The proposed action would involve placement of fill in a mapped floodplain and may involve modification of a federal levee for installation of a temporary dock. It is also possible that regulated wetlands are present. The following regulatory programs are expected to apply:

- 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. Floodplain requirements would be developed in coordination with the US Army Corps of Engineers (Corps) as part of their approval process.
- Under Section 14 of the Rivers and Harbors Act of 1899, referred to as Section 408, the Secretary of the Army, on the recommendation of the Chief of Engineers, may grant permission for the alteration, temporary occupation, or use of any seawall, bulkhead jetty, dike, levee, wharf, pier, or other work built by the United States.
- Placement of fill in wetlands is regulated under Section 404 of the Clean Water Act (CWA). Although the area appears to now be drained and in use for agriculture, wetlands are known to have been present on the property in the past. DWR would be responsible for assessing the site for the presence of wetlands and securing appropriate approvals prior to any regulated placement of fill.

In addition, the temporary dock placement and the dredging activity itself would be subject to permitting requirements for work in a regulated waterway. These likely include:

- Section 10 of the 1899 Rivers and Harbors Act,
- CDFW 2081 Incidental Take Permit and Streambed Alteration Agreement 1600 permit,

- Central Valley Regional Water Quality Control Board Section 401 Water Quality Certification,
- Army Corps of Engineers Section 404 Permit,
- National Marine Fisheries Service (NMFS) Biological Opinion, and
- United States Fish and Wildlife Service (USFWS) Biological Opinion.

All necessary permits would be maintained by DWR to extend the program until a permanent solution, such as the South Delta Improvements Program (DWR and Reclamation 2006; SDIP), is implemented.

2.2.2 Environmental Commitments

DWR shall implement the following environmental protection measures to reduce environmental consequences associated with the Proposed Action (Table 2-1). Environmental consequences for resource areas assume the measures specified would be fully implemented.

Table 2-1 Environmental Protection Measures and Commitments

Resource	Protection Measure
Biological Resources Valley elderberry longhorn beetle	An appropriate buffer from the shrubs' dripline shall be established around each eligible elderberry shrub (stems >1" diameter) located near treatment sites. The elderberry shrubs and buffers shall be clearly flagged and marked as an Environmentally Sensitive Area. No equipment (i.e. excavators, tractors, and wheel loaders) shall be used within the buffer area from the dripline of each elderberry shrub.
Biological Resources San Joaquin kit fox	Standard San Joaquin kit fox avoidance measures as established by the U.S. Fish and Wildlife Service (USFWS 2011) shall be followed during the proposed work.
Biological Resources Fisheries	In-water work construction window restricted to outside the seasonal salmonid and green sturgeon migration period (August 1st through November 30 th), when listed species are least likely to be present in the Proposed Action area.
Biological Resources Migratory Bird Treaty Act	<p>If construction would commence during the breeding season of February 1 through August 31, a qualified biologist or ornithologist shall conduct pre-construction surveys for ground and tree-nesting raptors (including Swainson's hawk and burrowing owls) at the Proposed Action area, in accordance with accepted survey protocols.</p> <ul style="list-style-type: none"> • If raptors are identified onsite or in the vicinity of the Project site during the preconstruction surveys, then an appropriate construction buffer area shall be determined by the biologist/ornithologist, and the buffer area shall be demarcated and avoided during construction. If it is not practicable to avoid said buffer areas during construction, then CDFW shall be consulted for appropriate action prior to disturbance within the buffer areas. • If no raptors are identified during the pre-construction surveys, then construction may commence without further mitigation for nesting raptors.

Resource	Protection Measure
Biological Resources Burrowing Owl	<p>If construction would commence during the non-breeding season of September 1 through January 31, a qualified biologist or ornithologist shall conduct pre-construction surveys for burrowing owls at the Project site, in accordance with accepted survey protocols.</p> <ul style="list-style-type: none"> • If burrowing owls are not detected onsite or in the vicinity of the site, then construction may commence without additional mitigation for burrowing owls. • If burrowing owls are detected during the preconstruction surveys the Reclamation biologist shall be notified and the project halted. If identified, impacts to burrowing owls and their burrows should be avoided or minimized per CDFW recommendations (CDFG, 2012). If burrowing owls and their burrows cannot be avoided then the Reclamation biologist shall consult with the CDFW on appropriate mitigation measures.
Water Quality	DWR shall apply for all necessary permits under the CWA, Rivers and Harbors Act and applicable state law. DWR will comply with stipulations and conditions of any permits.
Floodplains	DWR shall comply with applicable state and local requirements for work in floodplains.
Wetlands	DWR shall assess the site for the presence of wetlands before placing fill. Fill in wetlands will not be allowed without an authorizing permit.
Federal Levee System	DWR shall coordinate with the Corps prior to modifying any federal levees.
Air Quality	Contractors would be required to use best management practices to limit the extent to which grading, excavation and material stockpiling could impact air quality.

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 Water Resources

3.1.1 Affected Environment

The largest open water body near the project area is the Clifton Court Forebay, to the northwest. The Fabian Tract itself is bordered by the Old River, a tributary to the San Joaquin River, to the south and west. To the northeast lie two canals, the Grant Line Canal and Fabian-Bell Canal, which run parallel east and west. Islands of varying sizes are found throughout the area's river system.

According to USFWS National Wetland Inventory (NWI) maps the entire land parcel is classified as palustrine emergent wetland (USFWS 1991). However NWI maps are dated and often do not reflect current conditions. More recent site photographs show the site as cleared and relatively dry. It would be the responsibility of DWR to assess the regulatory status of the work area prior to beginning any construction.

3.1.2 Environmental Consequences

No Action

DWR will need to remove silt buildup from the channels regardless of whether Reclamation allows it to be stored at the Fabian Tract site. However, if spoils cannot be placed on Reclamation's property there would be no impacts to water resources from offloading or storage of material there.

Proposed Action

The primary difference in impacts between the Proposed Action and the No Action alternative would be due to construction of haul roads and storage cells, and operation of a temporary dock at the Fabian Tract site rather than at another location.

In order to construct the temporary dock, it would be necessary to clear approximately 1200 square feet (30' x 40') of riparian vegetation along the waterway. A barge would then be positioned against the shore and held stationary. A small cut would be made in the levee and an earthen ramp would be constructed leading from a haul road down to the barge deck. The equipment would be removed and the levee would be restored after the dock is no longer needed. It is anticipated that the dock would be in place from August 1 through November 30, which is the period expected to pose the least risk to sensitive species.

Additional site work would include creation of storage cells for dredge spoils, and temporary haul roads to transport the material. Wetlands are known to have been present on the Fabian Tract property in the past, and although the land and drainage patterns have been heavily modified, some wetland areas may remain. It would be DWR's responsibility to assess the site for jurisdictional features and comply with applicable regulations.

3.2 Land Use

3.2.1 Affected Environment

There are two main soil types in the South Delta Region. The first type is mineral soils, derived from weathered rock deposited from upstream rivers. The second soil type is peat, or organic matter from wetland and mineral rich alluvial soils deposited by the rivers. Peat soils cover most of the central part of the Delta and provide good soil for agricultural practices. The levee systems in the Delta are predominately peat soils, which historically has created instability problems (Healey et al. 2008). The project site consists primarily of lands which have been used for agricultural purposes (California Department of Conservation 2008), although they are not currently farmed.

The Fabian Tract is in Federal Emergency Management Agency (FEMA) flood hazard zone AE, meaning that it is at a high risk for flooding (FEMA 2009). The banks of the river have been reinforced over the years and are approximately 10 feet above the surrounding landscape, forming a levee around the property. In the past, adjacent property owners cleared vegetation from the area, but placement of spoil piles has made mowing difficult and it is now unmanaged.

3.2.2 Environmental Consequences

No Action

If no action were taken, the property in question would continue to be unused. DWR would be forced to find another disposal site for dredge spoils. Although no alternative disposal sites have been identified, it is likely that agricultural land would be converted for the purpose.

Proposed Action

Under the proposed action, use of the project site would not change. It would continue to be undeveloped beyond storage of dredge spoils. Storage of dredge spoils onsite would not interfere with any other uses, although changing the topography of the site could alter the flooding profile of the property. The Corps and DWR would be responsible for ensuring that the project does not create new flood hazards or worsen existing flooding.

3.3 Biological Resources

3.3.1 Affected Environment

On August 25, 2011, Reclamation surveyed the Fabian Tract site and access levee roads (West Grimes Road and Fink Road) by driving along existing paved and dirt roadways. More focused field surveys for sensitive species were conducted by walking along the levee road and Fabian Tract property. The following observations were made:

- Agriculture was the dominant land use bordering the Fabian Tract site and varied from irrigated pastures to row crops to orchards.
- Pockets of elderberry shrubs on the water-side of the levee were noted bordering the property and along access levee roads.
- The surrounding property had been baited for rodents.
- A few small mammal burrows were present on the site.
- The waterside levee banks were steep and heavily vegetated with shrubby vegetation dominated by thickets of blackberries (*Rubus* spp.), wild rose (*Rosa californica*), willows (*Salix* spp.), alders (*Alnus* spp.), and buttonbush (*Cephalanthus occidentalis*).
- There were also narrow bands of large trees with understories of smaller trees including cottonwood (*Populus* spp.), valley oak (*Quercus lobata*), boxelder (*Acer negundo*), willow, and alder along the northeast levee of the site.

Plant communities in the immediate vicinity are predominately agricultural and ruderal habitat, but there are also remnants of mixed riparian (<3 acres) and freshwater emergent marsh (<8 acres) located near the confluence of Grant Line Canal and Old River.

Reclamation requested an official special-status species list from the USFWS via the Sacramento Field Office's website, http://www.fws.gov/sacramento/ES_Species/Lists/es_species_lists-form.cfm on January 17, 2013 (document number: 130117092744). The list includes plants and animals that are legally protected under the federal Endangered Species Act (ESA) for the following USGS 7½ minute quadrangles (Quads): Vernalis, Midway, Altamont, Holt, Union Island, Woodward Island, Brentwood, Byron Hot Springs, and Clifton Court Forebay. Reclamation further queried the CDFW's California Natural Diversity Database (CNDDB) for records of protected species within 10 miles of the proposed action location (CNDDB 2013). The two lists, in addition to the type of action and other information within Reclamation's files, were combined to determine the likelihood of protected species occurrence within the study area (Table 3-1).

Table 3-1 Special-Status Species List

<u>Species</u>	<u>Status¹</u>	<u>Effects²</u>	<u>Occurrence Potential in the Study Area³</u>
AMPHIBIANS			
California red-legged frog (<i>Rana draytonii</i>)	T, X	NE	Absent. No individuals or habitat in area of effect. Critical habitat outside of Proposed Action area.
California tiger salamander, central population (<i>Ambystoma californiense</i>)	T	NE	Absent. No individuals, and vernal pools or other large seasonal ponds in area of effect.
FISH			
Central Valley spring-run Chinook salmon (<i>Oncorhynchus tshawytscha</i>)	T	NE	Absent. Not present in Proposed Action area during in-water construction work window.

<u>Species</u>	<u>Status¹</u>	<u>Effects²</u>	<u>Occurrence Potential in the Study Area³</u>
Central Valley steelhead (<i>Oncorhynchus mykiss</i>)	T, X	NLAA	Unlikely. Critical habitat for Central Valley steelhead exists within the Proposed Action area but the essential biological elements would not be diminished by the project. Species absent during in-water construction work window and potential effects avoided through incorporation of Environmental Protection Measures and Commitments, see Table 2-1 above.
delta smelt (<i>Hypomesus transpacificus</i>)	T, X	NLAA	Unlikely. Species migrates from estuary to spawn in shallow freshwater from April-June, and would not occur in Proposed Action area during in-water construction work window. Critical habitat present within the Proposed Action area but essential biological elements would not be diminished by the project. Effects to the species avoided through incorporation of Environmental Protection Measures and Commitments, see Table 2-1 above.
green sturgeon (<i>Acipenser medirostris</i>)	T, X	NLAA	Possible. Subadult green sturgeons may be in the area for rearing at any time. Critical habitat is present in Proposed Action area but essential biological elements marginal and any ground disturbance in the area temporary, and returned to preexisting conditions. Effects to the species avoided through incorporation of Environmental Protection Measures and Commitments, see Table 2-1 above.
Sacramento River winter-run Chinook salmon (<i>Oncorhynchus tshawytscha</i>)	E	NE	Absent. No natural waterways within the species' range would be affected by the proposed action.
INVERTEBRATES			
Conservancy fairy shrimp (<i>Branchinecta conservatio</i>)	E	NE	Absent. No individuals or habitat in area of effect.
Longhorn fairy shrimp (<i>Branchinecta conservatio</i>)	E, X	NE	Absent. No individuals or habitat in area of effect. Critical habitat outside of Proposed Action area.
valley elderberry longhorn beetle (<i>Desmocerus californicus dimorphus</i>)	T	NLAA	Possible. Reported as extant in the area and any elderberry shrubs within the Proposed Action area may provide habitat suitable for this species. Effects to the species avoided through incorporation of Environmental Protection Measures and Commitments, see Table 2-1 above.
vernal pool fairy shrimp (<i>Branchinecta lynchi</i>)	T, X	NE	Absent. No individuals or habitat in area of effect. Critical habitat outside of Proposed Action area.
vernal pool tadpole shrimp (<i>Lepidurus packardii</i>)	E	NE	Absent. No individuals or habitat in area of effect.
MAMMALS			
riparian brush rabbit (<i>Sylvilagus bachmani riparius</i>)	E	NE	Absent. Range is outside of Proposed Action area (restricted to south Delta, Caswell Memorial State Park, and the San Joaquin River National Wildlife Refuge).
San Joaquin kit fox (<i>Vulpes macrotis mutica</i>)	E	NLAA	Unlikely. Potential foraging and den habitat absent. Also occurrence in Proposed Action area is unlikely due to traffic, human activity. Effects to the species avoided through incorporation of Environmental Protection Measures and Commitments, see Table 2-1 above.

<u>Species</u>	<u>Status</u> ¹	<u>Effects</u> ²	<u>Occurrence Potential in the Study Area</u> ³
PLANTS			
large-flowered fiddleneck (<i>Amsinckia grandiflora</i>)	E, X	NE	Absent. No individuals or suitable habitat (native grasslands) in area of effect. Critical habitat outside of Proposed Action area.
Contra Costa goldfields (<i>Lasthenia conjugens</i>)	E, X	NE	Absent. No individuals or suitable habitat (vernal pools, swales, or moist flats in grassland matrix) in area of effect. Critical habitat outside of Proposed Action area.
palmate-bracted bird's-beak (<i>Cordylanthus palmatus</i>)	E	NE	Absent. No individuals or suitable habitat in area of effect. Alkali sink habitat not present within the Proposed Action area.
REPTILES			
Alameda whipsnake (<i>Masticophis lateralis euryxanthus</i>)	T, X	NE	Absent. No individuals or suitable habitat (chaparral) in area of effect. Critical habitat outside of Proposed Action area.
giant garter snake (<i>Thamnophis gigas</i>)	T	NE	Absent. No individuals or suitable habitat in area of effect.
<p>1 Status= Listing of Federally-protected species E: Listed as Endangered T: Listed as Threatened X: Critical habitat designated for this species</p> <p>2 Effects = Effect determination NLAA: Not likely to adversely affect NE: No Effect</p> <p>3 Definition Of Occurrence Indicators Present: Species recorded in area and suitable habitat present Possible: Species recorded in area but habitat suboptimal Unlikely: Species recorded in area but habitat requirements not met or species absent during in-water work window Absent: Species not recorded in study area and habitat requirements not met</p> <p>4 CNDDDB = California Natural Diversity Database 2013</p>			

Special-Status Wildlife

Reclamation determined that the following terrestrial species have the potential to occur in the vicinity of the Action area (based on nearby occurrence records and the presence of suitable habitat); federally endangered San Joaquin kit fox (*Vulpes macrotis mutica*; SJKF), the federally threatened valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*; VELB), and protected under the federal Migratory Bird Treaty Act (MBTA); burrowing owl (*Athene cunicularia*) and Swainson's hawk (*Buteo swainsoni*).

San Joaquin kit fox. SJKF was federally listed as endangered in 1967 (USFWS 1967). The range for the SJKF includes suitable habitat dispersed throughout the San Joaquin Valley floor and into surrounding foothills (USFWS 1998). SJKF primarily inhabits grassland and scrubland communities but will also inhabit oak woodland, alkali sink scrubland, and vernal pool and alkali meadow communities. Dens are essential for the survival and reproduction of the SJKF. They use ground squirrel burrows for their dens yet SJKF are reputedly poor diggers (Jensen 1972, Morrell 1972). For a complete review, please refer to the San Joaquin kit fox (*Vulpes macrotis mutica*) 5-year review: summary and evaluation (USFWS 2010a).

There are sightings of SJKF located approximately 2-3 miles west of Fabian Tract (with the most recent from 12 years ago; CNDDDB 2013). The proposed Action area contains only marginal foraging habitat. The high clay content of most soils in this region may preclude kit fox from digging their own dens. Also, agricultural lands do not appear to be suitable habitat for long-term SJKF persistence due to practices such as soil cultivation, frequent irrigation, and use of agricultural chemicals and pesticides, and due to altered prey and predator communities (Warrick et al. 2007).

Valley elderberry longhorn beetle. This species is nearly always found on, or close to, its host plant, elderberry (*Sambucus* species). There are four life stages in the animal's life: egg, larva, pupa, and adult. Females lay their eggs on the bark of living elderberry shrubs. When the larvae hatch, they burrow into the stems to feed and mature. The larval stage may last up to 2 years, after which the larvae enter the pupal stage and emerge into an adult. Adults are active from March to June, feeding and mating (USFWS 1999). For a complete review, please refer to the Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) 5-year review: summary and evaluation (USFWS 2006).

There are records for VELB approximately 9 miles northeast of Fabian Tract (EO Index: 34502; taken sometime in 1984; CNDDDB 2013). The proposed Action area contains marginal habitat, but any elderberry shrubs within the project area may be occupied by this species.

Burrowing owl. This small ground-dwelling owl is a yearlong-resident that exhibits high site fidelity to breeding areas and nesting burrows (Rich 1984, Lutz and Plumpton 1999, Ronan 2002). They live in ground squirrel and other mammal burrows, which it appropriates and enlarges for its own purposes (Martin 1973). Habitat for burrowing owls consists of open, well-drained soil; short, sparse vegetation; and underground burrows (Klute et al. 2003). They are typically found in short-grass grasslands, open scrub habitats, and a variety of open, human-altered environments, such as golf courses, airport runways and agricultural fields. They are active day and night and are opportunistic feeders. Their diet includes insects, amphibians, reptiles, small mammals, and grass material. The nesting season for burrowing owls occurs from February 1 - August 31 (CDFG 1995).

There are CNDDDB-recorded occurrences for burrowing owls in the vicinity of the project; with the closest report approximately 0.5 miles to the south of Fabian Tract (CNDDDB 2013). These owls will nest in small colonies along earthen canal banks and other sparsely vegetated disturbed sites. Burrows are the essential component of burrowing owl habitat and would most likely be rare in the project area due to rodent population control measures and the general operations and maintenance activities along the levee road.

Swainson's hawk. This species is a federal species of concern and protected under the federal MBTA. Swainson's hawks can be found in the grasslands and agricultural lands of California's Central Valley during spring and summer months. Their nesting season is from March 1 through September 15. They exhibit a high degree of nest site fidelity and nests are constructed in trees, including, but not limited to, Fremont cottonwood (*Populus fremontia*), willow (*Salix* spp.), Valley Oak (*Quercus lobata*), and eucalyptus (*Eucalyptus* spp.) (Bloom 1980). Swainson's hawks have adapted to the use of some croplands, predominantly alfalfa, but also other row crops for foraging (Estep 1989). Swainson's hawks prey on small mammals, insects, and birds.

Swainson's hawks are abundant in the south Delta and nest sites occur within one-half mile of the proposed project site (CNDDDB 2013).

Special-Status Fish Species

The Proposed Action area is under the influence of the CVP and SWP, operated for flood control and water for agricultural, municipal, industrial, recreational, and environmental purposes. Installation of the dock would occur between August 1 and November 30 beginning in 2013 through 2018. This window is during the period when federally protected species are least vulnerable to in-channel activities. The maximum area that would be impacted would not exceed more than 1,200 square feet to construct the temporary dock (30' x 40').

Reclamation determined that the following fish species have the potential to occur in the vicinity of the Action area (based on nearby occurrence records and the presence of suitable habitat); Central Valley steelhead (*Oncorhynchus mykiss*), delta smelt (*Hypomesus transpacificus*), and Southern Distinct Population Segment (DPS) of green sturgeon (green sturgeon) (*Acipenser medirostris*), and their critical habitats.

Central Valley steelhead. NMFS listed Central Valley steelhead as threatened January 5, 2006 (NMFS 2006a). This DPS consists of steelhead populations in the Sacramento and San Joaquin River (inclusive of and downstream of the Merced River) basins in California's Central Valley. Adult steelhead will typically enter freshwater from August through November to over-summer in cool water tributaries. During their upstream migration, salmonids require stream flows sufficient to provide olfactory and other orientation cues used to locate their natal streams. Ideal corridors contain riparian canopy structure, submerged and overhanging large woody objects, aquatic vegetation, large rocks and boulders, side channels, and undercut banks which augment juvenile and adult mobility, survival, and food supply. Migratory corridors include the Delta, Sacramento River, and San Joaquin River. Most spawning habitat for steelhead in the Central Valley is located in areas directly downstream of dams containing suitable environmental conditions for spawning and incubation. Refer to the Status Review Update for Pacific Salmon and Steelhead Listed under the Endangered Species Act: Southwest (NMFS 2011) for the current status of this species.

,The temporal occurrence of Central Valley steelhead in the Action area is best described by the salvage records of the CVP and SWP fish handling facilities. Steelhead will first start to appear in the Action area during November (Data from water year 1999-2000 to water year 2010-2011 Central Valley Operations website: <http://www.usbr.gov/mp/cvo/>). Their presence increases through December and peaks during February and March before declining in April. By June, the emigration has essentially ended, with only a small number of fish being salvaged through the summer at the CVP and SWP facilities.

During the installation of the temporary off loading dock, Steelhead may pass through this portion of the river to their spawning grounds, however; migrating steelhead would preferentially use the center of the channel where high, turbid flows provide cues to the location of their natal streams (McEwan and Jackson 1996).

Central Valley steelhead critical habitat. Critical habitat was designated for Central Valley steelhead on September 2, 2005 (NMFS 2005). Critical habitat occurs in stream reaches such as those of the Sacramento, Feather, and Yuba rivers, and Deer, Mill, Battle, and Antelope creeks in

the Sacramento River basin; the San Joaquin River, including its tributaries, and the waterways of the Delta. Primary constituent elements (PCEs) for Central Valley steelhead inland habitat types includes: (1) Spawning Habitat, (2) Rearing Habitat (3) Migration Corridor, and (4) Estuarine Habitat.

The project area does not support freshwater spawning and rearing habitat for Central Valley steelhead. There is little habitat complexity from overhanging or submerged woody objects because of levee maintenance in the area. The San Joaquin River and its tributaries provide a migratory corridor for steelhead, but generally steelhead would not reside for extended periods in these areas because preferred habitat conditions would not be met.

Delta smelt. This species was federally listed by USFWS as threatened on March 5, 1993 (USFWS 1993). Delta smelt are endemic to the upper San Francisco estuary, and primarily occurs in the open-waters of Suisun Bay, Suisun Marsh, and the Delta (Moyle et al. 1992, CDFG 2005). This small fish spends a large part of their annual life span associated with the freshwater edge of the mixing zone (zone of mixing or entrapment at the saltwater-freshwater interface), where the salinity is approximately 2 grams per liter (equivalent to parts per thousand [ppt]) (Jassby et al. 1995, Bennett 2005). The mixing zone provides a food-rich environment (DWR 2011) and the best survival and growth for delta smelt larvae (Moyle et al. 1992).

Adult delta smelt migrate from the highly productive brackish-water habitat associated with the mixing zone, to spawn in shallow, fresh, or slightly brackish water upstream of the mixing zone, mostly in tidally influenced backwater sloughs and channel edgewaters (USFWS 1995, Adib-Samii 2010). The spawning season varies from year to year and may occur from late winter (December) to early summer (July and August). Based on salvage reports from the CVP and SWP fish handling facilities in 2009, delta smelt are reported in the area during the first half of the year (February through June), with over 95% of those individuals salvaged being juveniles (Aasen 2010). Late summer through fall, delta smelt are typically distributed in the lower salinity habitats of the estuary (Bennett 2005) and therefore would be absent from the Action area during the in-water construction work window. For a complete review, please refer to the Delta smelt (*Hypomesus transpacificus*) 5-year review: short form summary (USFWS 2010b).

Delta smelt critical habitat. The Fabian Tract lies within the boundaries of designated critical habitat (USFWS 1994). PCEs for the delta smelt critical habitat pertain to their four-lifestage habitats: (1) Spawning Habitat, (2) Larval and Juvenile Transport, (3) Rearing Habitat, and (4) Adult Migration.

Submerged vegetation providing spawning and rearing habitat for fish is fairly limited in the area. Also, the area seasonally lacks adequate river flow and has high temperatures, making water quality poor for delta smelt during the dry summer months.

Green sturgeon. The Southern DPS of green sturgeon (green sturgeon) was federally listed as threatened throughout its range on April 7, 2006 (NMFS 2006b). This anadromous species spends most of its life in Pacific coastal marine and estuarine waters from Mexico to Alaska; only returning to large river mainstems every few years for spawning in freshwater (Nakamoto et al. 1995, Heublein 2009).

Green sturgeon will migrate up river systems starting in late February to spawn from March through July (NMFS 2006b). Spawning occurs in deep, turbulent, mainstem channels over large cobble and rocky substrates with crevices and interstices. During summer months following spawning, adult green sturgeon will stay in the deep, low gradient reaches of the river and water temperatures are between 15°C and 23°C (summer holding sites). When river flows increase and the temperature drops (~ 10°C) in the autumn and early winter, sturgeon will then begin to return to the ocean (Benson et al. 2007, Heublein 2008). Juveniles may spend one to four years in freshwater and estuarine environments before entering saltwater habitats based on observations in the Klamath River (Nakamoto et al. 1995). The movements of green sturgeon are not found to be related to salinity, current, or temperature, and Kelly et al. (2007) surmised that they are related to resource availability and foraging behavior. For the current status of green sturgeon, see Final Rule to list the Southern Distinct Population Segment of North American Green Sturgeon (NMFS 2006b).

Green sturgeons are routinely collected, although at low numbers, at the CVP and SWP salvage facilities throughout the year (Beamesderfer et al. 2007). The size range of these fish salvaged indicates that these are subadult fish rather than adult or larval/juvenile fish. It is believed that these subadults fish use the Delta for rearing for up to a period of approximately 3 years. The proximity of the CVP and SWP facilities to the Action area would indicate that subadults green sturgeons may be present in Old River but are most likely in deep holding sites and not along the riverbank (Action area).

Green sturgeon critical habitat. Critical habitat was designated for green sturgeon by NMFS and includes the stream channels and waterways in the Delta and the mainstem Sacramento River upstream to Keswick Dam, and the Feather River upstream to the fish barrier dam adjacent to the Feather River Fish Hatchery (NMFS 2009). This habitat overlaps the proposed Action area, and includes freshwater rearing habitat, freshwater migration corridors, and estuarine areas. The Action area functions primarily as a migratory corridor for adult and juvenile green sturgeon. In addition, subadults green sturgeon may use the Action area as rearing habitat. The Delta provides important rearing habitat for juveniles and subadults and important feeding and migratory habitat for juveniles, subadults, and adults. PCEs present within the Delta include: food resources (e.g., shrimp, amphipods, isopods, clams, annelid worms, crabs, and fish); water flow, water quality, and sediment quality to support migration and normal behavior, growth, and viability; and migratory corridors for migration between the Sacramento River system and the adjacent bays. Subadult and adult Southern DPS fish likely occur throughout the Delta.

PCEs present in the temporary off-loading facility, however, would be marginal due to ripped river banks and limited overhanging vegetation for both Central Valley steelhead and green sturgeon.

3.3.2 Environmental Consequences

No Action

Under the No Action Alternative, there would be no impacts to biological resources since conditions would remain the same as existing conditions.

Proposed Action

Special-Status Wildlife

Effects are similar to the No Action Alternative. Most of the habitat types required by species protected by the ESA do not occur in the project area. The project area is dominated by agricultural habitat, and any remaining habitat consists of isolated fragments supporting small, highly vulnerable animal and plant populations.

Provisions for the avoidance of effects to federally-protected species under ESA have been incorporated into the proposed action (see specific Environmental Protection Measures and Commitments in Table 2-1). Therefore, Reclamation has determined the proposed project is ***not likely to adversely affect (NLAA)*** SJKF and VELB and is in consultation with the USFWS.

Avoidance measures for burrowing owl and Swainson's hawk have also been incorporated into the proposed action (see specific Environmental Protection Measures and Commitments in Table 2-1). By following these measures, Reclamation has determined there would be ***no take*** of bird species protected under the MBTA. If burrowing owls are detected during the preconstruction surveys the Reclamation biologist shall be notified and the project halted. Reclamation would then consult with the CDFW on appropriate mitigation measures.

Special-Status Fish Species and Critical Habitat

Impacts to special-status fish species that may be in the Proposed Action area during dock installation would include short-term loss of habitat and degradation of water quality. Environmental Protection Measures and Commitments have been incorporated into the Proposed Action to protect special-status species (Table 2-1). As specified above, the dock would be installed only temporarily, and habitat conditions would be returned to pre-existing conditions.

Central Valley steelhead. Reclamation has determined that the project is ***NLAA*** the Central Valley steelhead or its designated critical habitat and is in consultation with NMFS. Any adverse effects from the project to this listed fish species are extremely unlikely to occur and are considered discountable. No foreseeable potential for take of individuals exists. Designated critical habitat for Central Valley steelhead exists within the Action area but the PCEs would not be diminished by the project, i.e., rearing habitat and migration corridors would not be demonstrably affected by the action.

Delta smelt. Reclamation has determined that the project is ***NLAA*** delta smelt or designated critical habitat in the area and is in consultation with the USFWS. There is no foreseeable potential for take of individuals resulting from this project because they would be from the area during the in-water work window. The Fabian Tract lies within delta smelt critical habitat designated boundaries but the PCEs of the designated critical habitat would not be diminished by the project, i.e., rearing habitat and migration corridors would not be demonstrably affected by the action.

Green sturgeon. Reclamation has determined that the project is ***NLAA*** green sturgeon or its designated critical habitat and is in consultation with NMFS. The potential for take of individuals is discountable. It is unlikely this species in the Action area during the in-water work window. Critical habitat for green sturgeon exists within the Action area but the PCEs of the

designated critical habitat would not be diminished by the project, i.e., rearing habitat and migration corridors would not be demonstrably affected by the action.

3.4 Cultural Resources

Cultural resources is a broad term that includes prehistoric, historic, architectural, and traditional cultural properties. The National Historic Preservation Act (NHPA) of 1966 is the primary Federal legislation that outlines the Federal Government's responsibility to cultural resources. Section 106 of the NHPA 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 Code of Federal Regulations (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 (APE), determine if historic properties are present within that APE, determine the effect that the undertaking will have on historic properties, and consult with the State Historic Preservation Office, 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.

Affected Environment

Cultural resources are known to exist within the Delta region. Historic era resources include canals, levees, shipwrecks, bridges, roads, etc. The nature of the Delta region generally lends to archaeological sites being located on areas of naturally high ground. Much of the archaeology in the region is likely destroyed given the intense modification of the Delta for farming, water conveyance, and levee construction. Hydraulic placer mining in the late 1800's caused enormous volumes of material to be deposited in the Delta Region resulting in significant portions of the Delta being buried in relatively recent mining waste. Given the intensity of surface modification of the Delta Region and the abundance of archaeological research for the area, finding previously unrecorded archaeological resources in the project area was determined to be only a distant possibility.

Cultural resources investigation within the project area resulted in no archaeological sites being identified. Several features of the built environment were noted in and near the project area. These include the Delta Mendota Canal, the Tracey Fish Facility, the Bill Jones Pumping Plant and other facilities associated with the Central Valley Project and the Delta transportation and agricultural history.

Environmental Consequences

No Action

Under the No Action Alternative, there would not be an undertaking as defined by Section 301 (7) of the National Historic Preservation Act. The permit would not be issued and DWR would not spoil dredged materials. The condition of cultural resources would be the same as under the existing conditions. No impacts to cultural resources are associated with this No Action Alternative.

Proposed Action

The proposed action alternative results in dredge material excavated by DWR to be placed on Reclamation lands for spoiling and longer term storage. This action was determined to be the type of action that had the potential to cause effects to cultural resources eligible for inclusion in the National Register. Utilizing the Section 106 process as outlined in the regulations at 36 CFR §800, Reclamation identified cultural resources within the APE in 2009. Reclamation initiated consultation with the California SHPO in 2009 seeking a concurrence on our finding that the proposed action would result in no adverse effect to historic properties.

The 2009 identification and consultation efforts included the proposed action but were part of a larger scale undertaking. The location of the proposed placement of dredge materials has no identified cultural resources that will be affected by the action. As a result, implementation of the proposed action will result in no effect to cultural resources.

Cumulative Impacts

There are no cumulative impacts to cultural resources resulting from the proposed action as no cultural resources are located within the area of the proposed dredge spoil areas.

3.5 Air Quality

Section 176 (c) of the Clean Air Act [CAA] (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 (SIP) required under Section 110 (a) of the Federal CAA (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 SIP'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 SIP 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 Bay Area Air Quality Management District (BAAQMD). The BAAQMD is out of attainment for the Federal air quality standards for ozone and particulate matter smaller than 2.5 microns (PM_{2.5}). In addition the area does not meet California's State standards for ozone, PM_{2.5} and particulate matter smaller than 10 microns (PM₁₀).

Table 3-2 Bay Area Air Quality Management District Attainment Status

Pollutant	Attainment Status- California	Attainment Status- Federal
CO	Attainment	Attainment
NOx	Attainment	Attainment
Ozone	Nonattainment	Nonattainment
PM _{2.5}	Nonattainment	Nonattainment
PM ₁₀	Nonattainment	Attainment
Source: BAAQMD 2012		

In 2010 the BAAQMD adopted its 2010 Clean Air Plan (CAP), which is designed to reduce ozone, particulate matter, air toxics and greenhouse gases (BAAQMD 2010). The CAP includes control measures to reduce emissions from a variety of sources, including mobile sources such as vehicles and stationary sources such as factories. Within the CAP, emissions from construction and farm equipment are covered by Control Measure MSM C-1. The Control Measure encourages early adoption of equipment with cleaner, more efficient engines and provides support for programs to develop cleaner equipment and fuels.

3.5.2 Environmental Consequences

No Action

If no action were taken by Reclamation, DWR would need to find another disposal/storage site. Although no alternative site has been identified, any site selected would likely be farther from the dredging site than Reclamation's property. Since this would require barges and trucks to travel longer distances and burn more fuel, emissions would be greater than under the proposed action.

Proposed Action

Under the proposed action, DWR would operate construction machinery and vehicles to transport dredged spoils to storage cells for later use. Land-based equipment would include a grader, bulldozer, dump trucks, track excavator and water truck. Depending on the type of dredging used, additional equipment could include a hydraulic dredge or a tugboat, a dredging barge and a transport barge. Operating this equipment would produce air emissions of criteria pollutants. However, emission quantities cannot be calculated at this time because they depend on the hours that equipment would be operated, which cannot be known until dredging locations and volumes are identified.

In addition to vehicle emissions, earthmoving operations can produce fugitive dust as loose soil becomes airborne. The dredge spoils themselves would still be wet and are unlikely to be a

source of airborne dust. However, construction of haul roads and the proposed storage cells could produce particulate matter emissions if not properly managed. To address this concern, contractors would be required to use best management practices to limit the extent to which grading, excavation and material stockpiling could impact air quality.

3.6 Global Climate

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 2011a).

Gases that trap heat in the atmosphere are often called greenhouse gases (GHG). Some GHG, such as carbon dioxide (CO₂), occur naturally and are emitted to the atmosphere through natural processes and human activities. Other GHG (e.g., fluorinated gases) are created and emitted solely through human activities. The principal GHG that enter the atmosphere because of human activities are: CO₂, methane (CH₄), nitrous oxide, and fluorinated gasses (EPA 2011a).

During the past century humans have substantially added to the amount of GHG 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 2011b).

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 GHG emissions. CARB is further directed to set a GHG emission limit, based on 1990 levels, to be achieved by 2020.

In addition, the EPA has issued regulatory actions under the CAA as well as other statutory authorities to address climate change issues (EPA 2011c). In 2009, the EPA issued a rule (40 CFR Part 98) for mandatory reporting of GHG by large source emitters and suppliers that emit 25,000 metric tons or more of GHG [as CO₂ equivalents (CO_{2e}) 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 2011c).

3.6.1 Affected Environment

Global mean surface temperatures have increased nearly 1.8°F from 1890 to 2006 (Intergovernmental Panel on Climate Change 2007). Models indicate that average temperature changes are likely to be greater in the northern hemisphere. Northern latitudes (above 24°North)

have exhibited temperature increases of nearly 2.1°F since 1900, with nearly a 1.8°F increase since 1970 alone (Intergovernmental Panel on Climate Change 2007). Without additional meteorological monitoring systems, it is difficult to determine the spatial and temporal variability and change of climatic conditions, but increasing concentrations of GHG are likely to accelerate the rate of climate change.

More than 20 million Californians rely on the SWP and CVP. Increases in air temperature may lead to changes in precipitation patterns, runoff timing and volume, sea level rise, and changes in the amount of irrigation water needed due to modified evapotranspiration rates. These changes may lead to impacts to California's water resources and project operations.

While there is general consensus in their trend, the magnitudes and onset-timing of impacts are uncertain and are scenario-dependent (Anderson et al. 2008).

3.6.2 Environmental Consequences

No Action

If no action were taken by Reclamation, DWR would need to find another disposal/storage site. Although no alternative site has been identified at this time, any site selected would likely be farther from the dredging site than Reclamation's property. Since this would require the barges and trucks to travel longer distances and burn more fuel, emissions would be greater than under the proposed action.

Proposed Action

GHG emissions would be produced by the vehicles and equipment necessary to dredge waterways, construct containment cells and place dredge spoils for storage. However, emission quantities cannot be calculated at this time because they depend on the hours that equipment would be operated, which cannot be known until dredging locations and volumes are identified.

Climate change could be expected to affect water cycles, which would affect the amount and timing of water available to users. CVP water allocations are made dependent on hydrologic conditions and environmental requirements. Since Reclamation operations and allocations are flexible, any changes in hydrologic conditions due to global climate change would be addressed within Reclamation's operation flexibility and therefore water resource changes due to climate change would be the same with or without the Proposed Action.

3.7 Cumulative Impacts

The Council on Environmental Quality regulations implementing the National Environmental Policy Act (NEPA) define cumulative impacts as the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Future cumulative impacts should not be speculative but should be based upon known or reasonably foreseeable long-range plans,

regulations, operating agreements, or other information that establishes them as reasonably foreseeable.

The following actions are considered in the analysis of cumulative impacts for the Proposed Action:

3.7.1 California Department of Water Resources Temporary Barriers Project

The TBP consists of a proposal to seasonally install up to three rock flow control structures and one rock fish control structure in south Delta channels at various times of the year, until permanent flow control structures are constructed. The program was initiated in 1991 to protect San Joaquin salmon migrating through the Delta and provide an adequate agricultural water supply in terms of quantity, quality, and channel water levels to meet the reasonable and beneficial needs of water users in the SDWA (NMFS 2012).

The TBP is interrelated with this action because the dredging project's goal is to mitigate for siltation in the waterways. The proposed action is not expected to interfere with the TBP, or other mitigation actions.

3.7.2 Proposed South Delta Improvements Program

The SDIP will improve the reliability of existing SWP facilities and operations within the South Delta. In addition it will ensure that water of adequate quantity and quality is available for diversions to beneficial use within the SDWA service area, as well as contributing to restoring the ecological health of aquatic resources in the lower San Joaquin River and South Delta. The proposed SDIP will cost \$53.9 million to construct and includes the following project components:

- Construction and operation of a new screened intake structure for the SWP Clifton Court Forebay. This new intake would be located on Byron Tract north of the Forebay and would use a new channel to move water from the screens into the Forebay.
- Possible channel dredging in a reach of Old River north of Clifton Court Forebay.
- Construction and seasonal operation of a permanent barrier in spring and fall to improve fishery conditions for salmon migrating along the San Joaquin River. This barrier is also referred to as the Head of Old River Barrier.
- Construction and operation of permanent flow control structures on Middle River and Old River near the DMC (also possibly in Grant Line Canal) to improve existing water levels and circulation patterns for agricultural users in the south Delta.
- Increased diversions into Clifton Court Forebay up to a maximum of 20,430 acre-feet per day on a monthly averaged basis. This results in the ability to pump an average of 10,300 cfs at Banks Pumping Plant (with additional annual average SWP water deliveries of 46,000 acre feet per year under existing demand conditions and 122,000 acre feet per year under future demand conditions, estimated for the year 2020).

The SDIP is the follow-on project to the Temporary Barriers Project, and provides permanent facilities to replace the temporary rock barriers. The permanent facilities provide far greater flexibility in operations than the rock barriers, and provide improved boat passage and fish passage capabilities.

The proposed action and the SDIP are complementary, since both are intended to improve function of the adjacent waterways for downstream users.

3.7.3 West Delta Water Management Program

The objective of the West Delta Program is to implement a land-use management program for effectively controlling subsidence and soil erosion on Sherman and Twitchell islands while also providing habitat for wildlife and waterfowl. DWR and CDFG have jointly developed the wildlife management plan for the two islands. That plan is also designed to benefit species of wildlife that occupy wetland, upland, and riparian habitats and provide recreational opportunities for hunting and wildlife viewing. In addition, property acquired and habitat developed through DWR's effort will be available for use as mitigation for impacts associated with DWR's ongoing Delta water management programs.

As a result of implementing the wildlife management plan, subsidence would be significantly reduced through minimizing oxidation and erosion of the peat soils on the islands. Minimizing oxidation and erosion would be accomplished by replacing present agricultural practices with land-use management practices designed to stabilize the soil. Those practices range from minimizing tillage to actively establishing wetland habitat. Altering land-use practices could result in up to 13,600 acres of managed wildlife and waterfowl habitat; increased flood control; additional protection of water quality in the Delta; increased reliability of SWP and CVP water supplies; and additional recreational opportunities in the Delta. Establishing wetland and wildlife habitats on the two islands also is consistent with national and State policies designed to enhance and expand wetlands.

The proposed action is expected to be compatible with the goals and activities of the West Delta Water Management Program.

3.8 Resources Eliminated from Further Analysis

Reclamation analyzed the affected environment of the Proposed Action and No Action Alternative and has determined that there is no potential for direct, indirect, or cumulative effects to the following resources:

Indian Trust Assets

Indian trust assets (ITA) are legal interests in assets that are held in trust by the United States Government for federally recognized Indian tribes or individuals. Reclamation's ITA Branch issued a determination on March 28, 2012 that there are no ITA within the Proposed Action area and therefore the proposed action does not have a potential to affect ITA.

Indian Sacred Sites

Reclamation is required by Executive Order 13007, to the extent practicable permitted by law, and not clearly inconsistent with essential agency functions, to: (1) accommodate access to, and ceremonial use of, Indian sacred sites by Indian religious practitioners; and (2) avoid adversely affecting the physical integrity of such sacred sites. When appropriate, Reclamation shall, to the greatest extent possible, maintain the confidentiality of sacred sites.

The Proposed Action would not inhibit access to or ceremonial use of any Indian Sacred Sites, nor would the Proposed Action adversely affect the physical integrity of such sacred sites.

Environmental Justice

There would not be any disproportionately high and adverse human health or environmental effects on minority populations or low-income populations.

Socioeconomic Resources

There is a potential for limited beneficial effects to socioeconomic resources as local supplies or services may be used during dredge activities. There would be no adverse impacts to socioeconomic resources.

As there would be no adverse impacts to the resources listed above as a result of the Proposed Action or the No Action alternative, they will not be considered further.

Section 4 Consultation and Coordination

4.1 Public Review Period

Reclamation intends to provide the public with an opportunity to comment on the Draft EA and Draft Finding of No Significant Impact between May 6, 2013 and June 5, 2013.

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

The Fish and Wildlife Coordination Act 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 or the USACE would initiate consultation with USFWS and NMFS on effects from the Proposed Action to wildlife resources. All activities at Fabian Tract would be in compliance with the ESA. The Project would not commence until consultation is complete.

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 or the USACE would initiate consultation with USFWS and NMFS on effects from the Proposed Action to species. All activities at Fabian Tract would be in compliance with the ESA. The Project would not commence until consultation is complete.

4.4 Migratory Bird Treaty Act (16 U.S.C. § 703 et seq.)

The MBTA implements various treaties and conventions between the United States and Canada, Japan, Mexico and the former Soviet Union for the protection of migratory birds. Unless permitted by regulations, the Act provides that it is unlawful to pursue, hunt, take, capture or kill; attempt to take, capture or kill; possess, offer to or sell, barter, purchase, deliver or cause to be shipped, exported, imported, transported, carried or received any migratory bird, part, nest, egg or product, manufactured or not. Subject to limitations in the Act, the Secretary of the Interior may adopt regulations determining the extent to which, if at all, hunting, taking, capturing,

killing, possessing, selling, purchasing, shipping, transporting or exporting of any migratory bird, part, nest or egg will be allowed, having regard for temperature zones, distribution, abundance, economic value, breeding habits and migratory flight patterns.

The proposed action would not change the land use patterns of the cultivated or fallowed fields that do have some value to listed species or birds protected by the MBTA. Preconstruction surveys for migratory birds would be completed and appropriate avoidance, minimization, and protection measures would be followed in consultation with USFWS and CDFW if active nests are located in the area of disturbance. Therefore, there would be *no take* to birds protected by the MBTA.

4.5 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 property in question is in a known flood hazard area, and the project would involve grading and fill, which could alter the flooding profile of the property. Previous work in 2000 was authorized by the Corps under Nationwide Permit (NWP) #35, and work in 2004-2005 was authorized under NWP #3. Standard General Conditions for these permits require the project proponent to comply with state and local floodplain management requirements. It is expected that the proposed action would require similar regulatory approvals. DWR and the Corps would be responsible for coordinating to ensure that existing flood hazards are not worsened and no new hazards are created as a result of the project.

4.6 Executive Order 11990 – Protection of Wetlands

Executive Order 11990 requires Federal agencies to follow avoidance, mitigation, and preservation procedures with public input before proposing new construction in wetlands.

Wetlands are known to have been present on the Fabian Tract property in the past, and although the land and drainage patterns have been heavily modified, some wetland areas may remain. It would be DWR's responsibility to assess the site for jurisdictional features and consult with regulatory agencies regarding any impact avoidance requirements.

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

Section 401 of the CWA (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 CWA (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 CWA would be required for the project applicant(s). Section 401 requires any applicant for an individual Corps dredge and fill discharge permit (Section 404) 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.

The dredge spoils are to be placed on dry land. No CWA permits are anticipated for the proposed action. Permits may be needed for the dredging action itself.

4.8 Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. § 1801 et seq.)

The Magnuson-Stevens Fishery Conservation and Management Act establishes a management system for national marine and estuarine fishery resources. This legislation requires that federal agencies consult with NMFS regarding actions or proposed actions permitted, funded, or undertaken that may adversely affect “essential fish habitat (EFH).” EFH is defined as “waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.” The Magnuson-Stevens Fishery Conservation and Management Act states that migratory routes to and from anadromous fish spawning grounds are considered EFH. The phrase “adversely affect” refers to the creation of any impact that reduces the quality or quantity of EFH. Federal activities that occur outside of EFH but may have an impact on EFH must be considered in the consultation process. The Magnuson-Stevens Fishery Conservation and Management Act applies to Pacific salmon, groundfish, and several pelagic species found in the Pacific.

Within the Proposed Action area, EFH for Pacific salmon is designated in these sections of Old River. Reclamation or the USACE will initiate consultation with NMFS on effects to EFH from the Proposed Action to species. The Project would not commence until consultation is complete.

4.9 Rivers and Harbors Act of 1899, as Amended (Sections 10 and 14)

Under Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403), the Corps regulates work in, over, or under, excavation of material from, or deposition of material into, navigable waters. Navigable waters of the United States are defined as those waters subject to the ebb and flow of the tide shoreward to the mean high-water mark, and those that are currently used, have been used in the past, or may be susceptible to use, to transport interstate or foreign commerce.

It is likely that any dredging project would involve navigable waterways that are covered by Section 10 regulations. DWR would need to consult with the Corps and determine appropriate measures to minimize impacts to navigable waters.

Under Section 14 of the Rivers and Harbors Act of 1899 (33 U.S.C. 408), referred to as Section 408, the Secretary of the Army, on the recommendation of the Chief of Engineers, may grant permission for the alteration, temporary occupation, or use of any seawall, bulkhead jetty, dike, levee, wharf, pier, or other work built by the United States. A levee is in place at the Fabian Tract site. For previous projects, the levee was modified to accommodate a temporary dock to offload dredge spoils. If another temporary dock were to be used, DWR and the Corps would coordinate to ensure that necessary levee functions are not impaired.

Section 5 Preparers and Reviewers

Ben Lawrence, Natural Resources Specialist, SCCAO-412
Chuck Siek, Natural Resources Specialist Supervisor, SCCAO-411
Jennifer Lewis, Wildlife Biologist, SCCAO-422
Adam Nickels, Archaeologist, MP-153
Patricia Rivera, ITA, MP-400

Section 6 Acronyms and Abbreviations

BAAQMD	Bay Area Air Quality Management District
BAFF tm	Bio-Acoustic Fish Fence
CAA	Clean Air Act
CAP	Clean Air Plan
CARB	California Air Resources Board
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CFR	Code of Federal Regulations
CNDDDB	California Natural Diversity Database
Corps	Corps of Engineers
CVP	Central Valley Project
CWA	Clean Water Act
DMC	Delta Mendota Canal
DPS	Distinct Population Segment
DWR	Department of Water Resources
EA	Environmental Assessment
EFH	Essential Fish Habitat
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FWCA	Fish and Wildlife Coordination Act
GHG	Greenhouse Gases
ITA	Indian Trust Asset
MBTA	Migratory Bird Treaty Act
National Register	National Register of Historic Places
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NLAA	Not Likely to Adversely Affect
NMFS	National Marine Fisheries Service
NWI	National Wetland Inventory
NWP	Nationwide Permit
PCE	Primary Constituent Elements
PM _{2.5}	Particulate matter less than 2.5 microns in diameter
PM ₁₀	Particulate matter between 2.5 and 10 microns in diameter
Reclamation	US Bureau of Reclamation
RWQCB	Regional Water Quality Control Board
SDIP	South Delta Improvement Program
SDWA	South Delta Water Agency
SIP	State Implementation Plan
SJKF	San Joaquin Kit Fox
SWP	State Water Project

TBP	Temporary Barriers Project
USFWS	US Fish and Wildlife Service
VELB	Valley Elderberry Longhorn Beetle

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From: Rivera, Patricia L
Sent: Wednesday, March 28, 2012 8:21 AM
To: Siek, Charles R; Williams, Mary D (Diane); Robbins, Eleanor J (Ellie)
Subject: RE: Department of Water Resources License to Construct *****ELLIE THIS IS ADMIN

Charles,

I reviewed the proposed action where Reclamation will be issuing a license to allow the Department of Water Resources access to Reclamation property for the storage of dredged material and to perform maintenance on existing temporary barriers.

The proposed action does not have a potential to affect Indian Trust Assets.

Patricia

From: Nickels, Adam M
Sent: Wednesday, April 11, 2012 10:43 AM
To: Siek, Charles R
Cc: Halstead, Charles W; Lewis, Jennifer; Barnes, Amy J; Bruce, Brandee E; Dunay, Amy L; Fogerty, John A; Goodsell, Joanne E; Leigh, Anastasia T; Overly, Stephen A; Perry, Laureen (Laurie) M; Soule, William E; Williams, Scott A
Subject: RE: Department of Water Resources License to Construct and Utilize Settling Ponds for Dredging Material
Attachments: 07-SCAO-116.1.pdf; 07-SCAO-116.1 SHPO Response No. II.pdf

Project No. 12-SCAO-119
 (Associated Project No. 07-SCAO-116.1)

Chuck:

The proposed undertaking to allow the California Department of Water Resources (DWR) to store dredged materials within the settling ponds immediately south of the Delta-Mendota Canal intake channel near the Tracey Fish Facility and Jones Pumping plant is the type of activity that has the potential to effect historic properties assuming they are present. As a result, Reclamation has the responsibility to delineate an area of potential effects (APE), make a good faith effort to identify historic properties, assess the effects of the proposed undertaking on historic properties, and consulting with the California State Historic Preservation Officer (SHPO) seeking their concurrence on our findings.

In 2007, Reclamation investigated the proposed filling of the abandoned Delta-Mendota Alternative Channel. This proposed action, among other things, included use of the stilling ponds south of the DMC for settling water and placement of dredge materials. Reclamation conducted cultural resources identification efforts within the Settling Ponds and documented its findings in a cultural resources inventory report authored by me, dated 02/2009, titled *Class III Cultural Resources Inventory for Tracy Fish Facility, Abandoned Intake Rehabilitation and Development, Contra Costa County, CA*. The survey efforts identified no cultural resources within the stilling ponds with the exception of the stilling ponds themselves. Our efforts also included the evaluation of the Alternative Intake, the Tracy Fish Facility, and the excavation piles adjacent the DMC. Reclamation had previously determined that the DMC and the Jones Pumping Plant were eligible for inclusion in the National Register of Historic Places (National Register).

In consultation with the SHPO (attached) the SHPO agreed with our determination that the settling ponds, the DMC waste/spoils piles, and the Alternative Intake were not eligible for inclusion in the National Register. The SHPO also provided their concurrence on our finding that the proposed undertaking would not result in an adverse effect to those resources. However, the SHPO did not provide its consensus on the eligibility of the Tracey Fish Facility stating that the information provided did not adequately demonstrate the our finding that the Fish Facility was not eligible for inclusion in the National Register. The SHPO recognized that the fish facility not going to be affected by the proposed undertaking, rather it was only evaluated in association given its proximity to the Alternative Intake. All other components of the Alternative intake channel were allowed to able to move forward. Reclamation still contends that the fish facility is not a historic property and the SHPO still recognizes the property is undetermined.

We recognize that the two undertakings are technically different, however, the proposed action of the current undertaking is identical to a component of the proposed actions associated with the Alternative Intake. Because the two actions line up, the effects to historic properties would not change. Reclamation's determination is based on the idea that a small amount of time has passed since the previous identification and consultation efforts for the Alternative Intake, and the size, scale, and scope of the proposed action is within the confines of

the previous effort. The proposed actions associated with the current undertaking are consistent with the proposed actions associated with the proposed alternative intake closure. Our consultation efforts and the SHPO concurrence on the effects of the remaining components are sufficient for documenting our Section 106 good faith efforts to identify, and determine effects to historic properties.

This email memo is intended to convey the conclusion of the Section 106 process for this undertaking. Please retain a copy of this memo with the administrative record. Thank you for providing the opportunity to comment.

Sincerely,

Adam M. Nickels - Archaeologist - M.S.

Phone: 916.978.5053 - Fax: 916.978.5055 - www.usbr.gov



-Mid-Pacific Regional Office MP-153 2800 Cottage Way - Sacramento, California 95825



From: Siek, Charles R

Sent: Wednesday, March 28, 2012 8:16 AM

To: BOR MPR Cultural Resources Section; Rivera, Patricia L; Williams, Mary D (Diane); Robbins, Eleanor J (Ellie); Hyatt, David E; Lewis, Jennifer

Cc: Halstead, Charles W

Subject: Department of Water Resources License to Construct and Utilize Settling Ponds for Dredging Material

Greetings all,

Mike Eng originally sent this request for determinations but we didn't have much of a PD at that time so I'm re-sending a more up to date version with the "in-progress" EA attached. The project is limited to allowing access to Reclamation property by DWR to store and dry dredge material.

- Request Date: 3/28/12 Requesting Office: SCCAO Requestor: Chuck Siek
- Project Name: Department of Water Resources License to Construct and Utilize Settling Ponds for Dredging Material
- Target Date for Completion: April 13, 2012
- Cost Authority: A20-0863-499-00-0-0
- Reclamation Point of Contact-Project Manager: Chuck Halstead Environmental Manager: Chuck Siek
- Project Description: Reclamation's action is limited to the issuance of a license to allow DWR access to Reclamation property for the storage of dredged material and to perform maintenance on existing temporary barriers. The movement of dredged material includes several operations including:
 - The installation of a temporary dock which would include minor modification to the embankment for installation;
 - The dock would provide the base for an excavator which would pick-up the dredged material for placement in dump trucks;
 - The dump trucks would move the dredged material to Reclamation's Parcel Settlement Pond #No. 1;
 - The material would be left in place to dry. Once the dredged material meets applicable requirements, it would be either used in place for beneficial use or would be removed by truck to other Delta

upland sites. The moved material may be used for ecosystem restoration projects designed by the CALFED Bay-Delta Program, to strengthen levees by building landside berms, or by filling areas of very low elevation to minimize risks associated with flooding.

- The maintenance of temporary barriers includes removal of channel bottom sediment which would be covered under existing Biological Opinions issued to the Corps (lead agency for Section 7 of the Endangered Species Act) for the Temporary Barriers project. This sediment is sand bar material that has accumulated at the site since the last removal of the barriers. DWR would conduct characterization of that material and conduct environmental clearances of the Bureau's Fabian Tract site before transporting and placing the material there.
- Reclamation's Role/Action: Issuance of a permit to access Reclamation property.
- Other Federal Agencies Involved/Cooperating Agencies and Roles: DWR Lead State Agency Army Corps of Engineers
- Level of NEPA Anticipated: EA/FONSI
- Project Location on USGS Topo Map and Legal Description, GIS Shape Files if available: Parcel # 189-050-18 (34.48 acres), Delta Mendota Canal , Unit B-0-0, located in Section 29, Township 1 South, Range 4 east, M.D.B.M. – Central Valley Project.
- Supplemental Information
 - Photographs of Project Area (attached)

Just what ya need even more work!

Chuck

**U.S. FISH AND WILDLIFE SERVICE
STANDARDIZED RECOMMENDATIONS
FOR PROTECTION OF THE ENDANGERED SAN JOAQUIN KIT FOX
PRIOR TO OR DURING GROUND DISTURBANCE**

Prepared by the Sacramento Fish and Wildlife Office
January 2011

INTRODUCTION

The following document includes many of the San Joaquin kit fox (*Vulpes macrotis mutica*) protection measures typically recommended by the U. S. Fish and Wildlife Service (Service), prior to and during ground disturbance activities. **However, incorporating relevant sections of these guidelines into the proposed project is not the only action required under the Endangered Species Act of 1973, as amended (Act) and does not preclude the need for section 7 consultation or a section 10 incidental take permit for the proposed project.** Project applicants should contact the Service in Sacramento to determine the full range of requirements that apply to your project; the address and telephone number are given at the end of this document. Implementation of the measures presented in this document may be necessary to avoid violating the provisions of the Act, including the prohibition against "take" (defined as killing, harming, or harassing a listed species, including actions that damage or destroy its habitat). These protection measures may also be required under the terms of a biological opinion pursuant to section 7 of the Act resulting in incidental take authorization (authorization), or an incidental take permit (permit) pursuant to section 10 of the Act. The specific measures implemented to protect kit fox for any given project shall be determined by the Service based upon the applicant's consultation with the Service.

The purpose of this document is to make information on kit fox protection strategies readily available and to help standardize the methods and definitions currently employed to achieve kit fox protection. The measures outlined in this document are subject to modification or revision at the discretion of the Service.

IS A PERMIT NECESSARY?

Certain acts need a permit from the Service which includes destruction of any known (occupied or unoccupied) or natal/pupping kit fox dens. Determination of the presence or absence of kit foxes and /or their dens should be made during the environmental review process.

All surveys and monitoring described in this document must be conducted by a qualified biologist and these activities do not require a permit. A qualified biologist (biologist) means any person who has completed at least four years of university training in wildlife biology or a related science and/or has demonstrated field experience in the identification and life history of the San Joaquin kit fox. In addition, the biologist(s) must be able to identify coyote, red fox,

gray fox, and kit fox tracks, and to have seen a kit fox in the wild, at a zoo, or as a museum mount. Resumes of biologists should be submitted to the Service for review and approval prior to any survey or monitoring work occurring.

SMALL PROJECTS

Small projects are considered to be those projects with small foot prints, of approximately one acre or less, such as an individual in-fill oil well, communication tower, or bridge repairs. These projects must stand alone and not be part of, or in any way connected to larger projects (i.e., bridge repair or improvement to serve a future urban development). The Service recommends that on these small projects, the biologist survey the proposed project boundary and a 200-foot area outside of the project footprint to identify habitat features and utilize this information as guidance to situate the project to minimize or avoid impacts. If habitat features cannot be completely avoided, then surveys should be conducted and the Service should be contacted for technical assistance to determine the extent of possible take.

Preconstruction/preactivity surveys shall be conducted no less than 14 days and no more than 30 days prior to the beginning of ground disturbance and/or construction activities or any project activity likely to impact the San Joaquin kit fox. Kit foxes change dens four or five times during the summer months, and change natal dens one or two times per month (Morrell 1972). Surveys should identify kit fox habitat features on the project site and evaluate use by kit fox and, if possible, assess the potential impacts to the kit fox by the proposed activity. The status of all dens should be determined and mapped (see Survey Protocol). Written results of preconstruction/preactivity surveys must be received by the Service within five days after survey completion and prior to the start of ground disturbance and/or construction activities.

If a natal/pupping den is discovered within the project area or within 200-feet of the project boundary, the Service shall be immediately notified and under no circumstances should the den be disturbed or destroyed without prior authorization. If the preconstruction/preactivity survey reveals an active natal pupping or new information, the project applicant should contact the Service immediately to obtain the necessary take authorization/permit.

If the take authorization/permit has already been issued, then the biologist may proceed with den destruction within the project boundary, except natal/pupping den which may not be destroyed while occupied. A take authorization/permit is required to destroy these dens even after they are vacated. Protective exclusion zones can be placed around all known and potential dens which occur outside the project footprint (conversely, the project boundary can be demarcated, see den destruction section).

OTHER PROJECTS

It is likely that all other projects occurring within kit fox habitat will require a take authorization/permit from the Service. This determination would be made by the Service during the early evaluation process (see Survey Protocol). These other projects would include, but are not limited to: Linear projects; projects with large footprints such as urban development; and projects which in themselves may be small but have far reaching impacts (i.e., water storage or conveyance facilities that promote urban growth or agriculture, etc.).

The take authorization/permit issued by the Service may incorporate some or all of the protection measures presented in this document. The take authorization/permit may include measures specific to the needs of the project and those requirements supersede any requirements found in this document.

EXCLUSION ZONES

In order to avoid impacts, construction activities must avoid their dens. The configuration of exclusion zones around the kit fox dens should have a radius measured outward from the entrance or cluster of entrances due to the length of dens underground. The following distances are **minimums**, and if they cannot be followed the Service must be contacted. Adult and pup kit foxes are known to sometimes rest and play near the den entrance in the afternoon, but most above-ground activities begin near sunset and continue sporadically throughout the night. Den definitions are attached as Exhibit A.

Potential den**	50 feet
Atypical den**	50 feet
Known den*	100 feet
Natal/pupping den (occupied <u>and</u> unoccupied)	Service must be contacted

***Known den:** To ensure protection, the exclusion zone should be demarcated by fencing that encircles each den at the appropriate distance and does not prevent access to the den by kit foxes. Acceptable fencing includes untreated wood particle-board, silt fencing, orange construction fencing or other fencing as approved by the Service as long as it has openings for kit fox ingress/egress and keeps humans and equipment out. Exclusion zone fencing should be maintained until all construction related or operational disturbances have been terminated. At that time, all fencing shall be removed to avoid attracting subsequent attention to the dens.

****Potential and Atypical dens:** Placement of 4-5 flagged stakes 50 feet from the den entrance(s) will suffice to identify the den location; fencing will not be required, but the exclusion zone must be observed.

Only essential vehicle operation on existing roads and foot traffic should be permitted. Otherwise, all construction, vehicle operation, material storage, or any other type of surface-disturbing activity should be prohibited or greatly restricted within the exclusion zones.

DESTRUCTION OF DENS

Limited destruction of kit fox dens may be allowed, if avoidance is not a reasonable alternative, provided the following procedures are observed. The value to kit foxes of potential, known, and natal/pupping dens differ and therefore, each den type needs a different level of protection.

Destruction of any known or natal/pupping kit fox den requires take authorization/permit from the Service.

Destruction of the den should be accomplished by careful excavation until it is certain that no kit foxes are inside. The den should be fully excavated, filled with dirt and compacted to ensure that kit foxes cannot reenter or use the den during the construction period. If at any point during excavation, a kit fox is discovered inside the den, the excavation activity shall cease immediately and monitoring of the den as described above should be resumed. Destruction of the den may be completed when in the judgment of the biologist, the animal has escaped, without further disturbance, from the partially destroyed den.

Natal/pupping dens: Natal or pupping dens which are occupied will not be destroyed until the pups and adults have vacated and then only after consultation with the Service. Therefore, project activities at some den sites may have to be postponed.

Known Dens: Known dens occurring within the footprint of the activity must be monitored for three days with tracking medium or an infra-red beam camera to determine the current use. If no kit fox activity is observed during this period, the den should be destroyed immediately to preclude subsequent use.

If kit fox activity is observed at the den during this period, the den should be monitored for at least five consecutive days from the time of the observation to allow any resident animal to move to another den during its normal activity. Use of the den can be discouraged during this period by partially plugging its entrances(s) with soil in such a manner that any resident animal can escape easily. Only when the den is determined to be unoccupied may the den be excavated under the direction of the biologist. If the animal is still present after five or more consecutive days of plugging and monitoring, the den may have to be excavated when, in the judgment of a biologist, it is temporarily vacant, for example during the animal's normal foraging activities.

The Service encourages hand excavation, but realizes that soil conditions may necessitate the use of excavating equipment. However, extreme caution must be exercised.

Potential Dens: If a take authorization/permit has been obtained from the Service, den destruction may proceed without monitoring, unless other restrictions were issued with the take authorization/permit. If no take authorization/permit has been issued, then potential dens should be monitored as if they were known dens. If any den was considered to be a potential den, but is later determined during monitoring or destruction to be currently, or previously used by kit fox (e.g., if kit fox sign is found inside), then all construction activities shall cease and the Service shall be notified immediately.

CONSTRUCTION AND ON-GOING OPERATIONAL REQUIREMENTS

Habitat subject to permanent and temporary construction disturbances and other types of ongoing project-related disturbance activities should be minimized by adhering to the following activities. Project designs should limit or cluster permanent project features to the smallest area possible while still permitting achievement of project goals. To minimize temporary disturbances, all project-related vehicle traffic should be restricted to established roads, construction areas, and other designated areas. These areas should also be included in preconstruction surveys and, to the extent possible, should be established in locations disturbed by previous activities to prevent further impacts.

1. Project-related vehicles should observe a daytime speed limit of 20-mph throughout the site in all project areas, except on county roads and State and Federal highways; this is particularly important at night when kit foxes are most active. Night-time construction should be minimized to the extent possible. However if it does occur, then the speed limit should be reduced to 10-mph. Off-road traffic outside of designated project areas should be prohibited.
2. To prevent inadvertent entrapment of kit foxes or other animals during the construction phase of a project, all excavated, steep-walled holes or trenches more than 2-feet deep should be covered at the close of each working day by plywood or similar materials. If the trenches cannot be closed, one or more escape ramps constructed of earthen-fill or wooden planks shall be installed. Before such holes or trenches are filled, they should be thoroughly inspected for trapped animals. If at any time a trapped or injured kit fox is discovered, the Service and the California Department of Fish and Game (CDFG) shall be contacted as noted under measure 13 referenced below.
3. Kit foxes are attracted to den-like structures such as pipes and may enter stored pipes and become trapped or injured. All construction pipes, culverts, or similar structures with a diameter of 4-inches or greater that are stored at a construction site for one or more overnight periods should be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a kit fox is discovered inside a pipe, that section of pipe should not be moved until the Service has been consulted. If necessary, and under the direct supervision of the biologist, the pipe

may be moved only once to remove it from the path of construction activity, until the fox has escaped.

4. All food-related trash items such as wrappers, cans, bottles, and food scraps should be disposed of in securely closed containers and removed at least once a week from a construction or project site.
5. No firearms shall be allowed on the project site.
6. No pets, such as dogs or cats, should be permitted on the project site to prevent harassment, mortality of kit foxes, or destruction of dens.
7. Use of rodenticides and herbicides in project areas should be restricted. This is necessary to prevent primary or secondary poisoning of kit foxes and the depletion of prey populations on which they depend. All uses of such compounds should observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other State and Federal legislation, as well as additional project-related restrictions deemed necessary by the Service. If rodent control must be conducted, zinc phosphide should be used because of a proven lower risk to kit fox.
8. A representative shall be appointed by the project proponent who will be the contact source for any employee or contractor who might inadvertently kill or injure a kit fox or who finds a dead, injured or entrapped kit fox. The representative will be identified during the employee education program and their name and telephone number shall be provided to the Service.
9. An employee education program should be conducted for any project that has anticipated impacts to kit fox or other endangered species. The program should consist of a brief presentation by persons knowledgeable in kit fox biology and legislative protection to explain endangered species concerns to contractors, their employees, and military and/or agency personnel involved in the project. The program should include the following: A description of the San Joaquin kit fox and its habitat needs; a report of the occurrence of kit fox in the project area; an explanation of the status of the species and its protection under the Endangered Species Act; and a list of measures being taken to reduce impacts to the species during project construction and implementation. A fact sheet conveying this information should be prepared for distribution to the previously referenced people and anyone else who may enter the project site.
10. Upon completion of the project, all areas subject to temporary ground disturbances, including storage and staging areas, temporary roads, pipeline corridors, etc. should be re-contoured if necessary, and revegetated to promote restoration of the area to pre-project conditions. An area subject to "temporary" disturbance means any area that is

disturbed during the project, but after project completion will not be subject to further disturbance and has the potential to be revegetated. Appropriate methods and plant species used to revegetate such areas should be determined on a site-specific basis in consultation with the Service, California Department of Fish and Game (CDFG), and revegetation experts.

11. In the case of trapped animals, escape ramps or structures should be installed immediately to allow the animal(s) to escape, or the Service should be contacted for guidance.
12. Any contractor, employee, or military or agency personnel who are responsible for inadvertently killing or injuring a San Joaquin kit fox shall immediately report the incident to their representative. This representative shall contact the CDFG immediately in the case of a dead, injured or entrapped kit fox. The CDFG contact for immediate assistance is State Dispatch at (916)445-0045. They will contact the local warden or Mr. Paul Hoffman, the wildlife biologist, at (530)934-9309. The Service should be contacted at the numbers below.
13. The Sacramento Fish and Wildlife Office and CDFG shall be notified in writing within three working days of the accidental death or injury to a San Joaquin kit fox during project related activities. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal and any other pertinent information. The Service contact is the Chief of the Division of Endangered Species, at the addresses and telephone numbers below. The CDFG contact is Mr. Paul Hoffman at 1701 Nimbus Road, Suite A, Rancho Cordova, California 95670, (530) 934-9309.
14. New sightings of kit fox shall be reported to the California Natural Diversity Database (CNDDDB). A copy of the reporting form and a topographic map clearly marked with the location of where the kit fox was observed should also be provided to the Service at the address below.

Any project-related information required by the Service or questions concerning the above conditions or their implementation may be directed in writing to the U.S. Fish and Wildlife Service at:

Endangered Species Division
2800 Cottage Way, Suite W2605
Sacramento, California 95825-1846
(916) 414-6620 or (916) 414-6600

EXHIBIT “A” - DEFINITIONS

"Take" - Section 9 of the Endangered Species Act of 1973, as amended (Act) prohibits the "take" of any federally listed endangered species by any person (an individual, corporation, partnership, trust, association, etc.) subject to the jurisdiction of the United States. As defined in the Act, take means " . . . to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct". Thus, not only is a listed animal protected from activities such as hunting, but also from actions that damage or destroy its habitat.

"Dens" - San Joaquin kit fox dens may be located in areas of low, moderate, or steep topography. Den characteristics are listed below, however, the specific characteristics of individual dens may vary and occupied dens may lack some or all of these features. Therefore, caution must be exercised in determining the status of any den. Typical dens may include the following: (1) one or more entrances that are approximately 5 to 8 inches in diameter; (2) dirt berms adjacent to the entrances; (3) kit fox tracks, scat, or prey remains in the vicinity of the den; (4) matted vegetation adjacent to the den entrances; and (5) manmade features such as culverts, pipes, and canal banks.

"Known den" - Any existing natural den or manmade structure that is used or has been used at any time in the past by a San Joaquin kit fox. Evidence of use may include historical records, past or current radiotelemetry or spotlighting data, kit fox sign such as tracks, scat, and/or prey remains, or other reasonable proof that a given den is being or has been used by a kit fox. The Service discourages use of the terms "active" and "inactive" when referring to any kit fox den because a great percentage of occupied dens show no evidence of use, and because kit foxes change dens often, with the result that the status of a given den may change frequently and abruptly.

"Potential Den" - Any subterranean hole within the species' range that has entrances of appropriate dimensions for which available evidence is insufficient to conclude that it is being used or has been used by a kit fox. Potential dens shall include the following: (1) any suitable subterranean hole; or (2) any den or burrow of another species (e.g., coyote, badger, red fox, or ground squirrel) that otherwise has appropriate characteristics for kit fox use.

"Natal or Pupping Den" - Any den used by kit foxes to whelp and/or rear their pups. Natal/pupping dens may be larger with more numerous entrances than dens occupied exclusively by adults. These dens typically have more kit fox tracks, scat, and prey remains in the vicinity of the den, and may have a broader apron of matted dirt and/or vegetation at one or more entrances. A natal den, defined as a den in which kit fox pups are actually whelped but not necessarily reared, is a more restrictive version of the pupping den. In practice, however, it is difficult to distinguish between the two, therefore, for purposes of this definition either term applies.

"Atypical Den" - Any manmade structure which has been or is being occupied by a San Joaquin kit fox. Atypical dens may include pipes, culverts, and diggings beneath concrete slabs and buildings.