Draft

COLLECTING CANAL MAINTENANCE

Initial Study/Proposed Mitigated Negative Declaration

Prepared for
California Department of Water Resources

July 2016

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Initial Study/Proposed Mitigated Negative Declaration

Prepared for:

California Department of Water Resources
Division of Flood Management
Flood Management Office
3310 El Camino Ave, Suite 140
Sacramento, CA 95821
Contact: Jeff Schuette
(916) 574-1355

Prepared by:

Environmental Science Associates
2600 Capitol Ave, Suite 200
Sacramento, CA 95816
Contact: Ramona Swenson
(916) 564-4500

H.T. Harvey & Associates
1331 Garden Highway, Suite 310
Sacramento, CA 95833
Contact: Debra Bishop
(916) 779-7351

NOTICE OF INTENT TO ADOPT A MITIGATED NEGATIVE DECLARATION FOR THE COLLECTING CANAL MAINTENANCE of PROJECT No. 6 (c)

The Department of Water Resources (DWR) has prepared an Initial Study (IS) with the intent to adopt a Mitigated Negative Declaration (MND) pursuant to the California Environmental Quality Act (CEQA) to address the environmental consequences of implementing the proposed Collecting Canal Maintenance of Project No. 6 (c) (proposed Project). These facilities, which are part of the Sacramento River Flood Control Project, are maintained in order to minimize flood risk. Maintenance activities would include: sediment removal from approximately 60 miles of collecting canals; bridge repair and maintenance of three bridges (CC-2, CC-4, EL-1A); culvert repair, replacement, or removal; and debris removal, woody vegetation removal, or vegetation spraying associated with these activities. These facilities are located between the Sutter Buttes (south of Colusa, California) and Nicolaus, California (north of Sacramento)

Copies of the IS can be viewed at DWR's office at 3310 El Camino Avenue, Sacramento, California from 9 a.m. to 5 p.m., Monday through Friday or online at http://www.water.ca.gov/floodmgmt/fmo/msb/collecting-canal.cfm. The 30-day public comment period on the Initial Study begins on July 13, 2016. Please submit any written comments no later than 5 p.m. August 11, 2016 to:

California Department of Water Resources
Division of Flood Management
Attention: Jeff Schuette
3310 El Camino Ave, Room 100
Sacramento, CA 95821

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CHAPTER 1
Introduction

As lead agency under the California Environmental Quality Act (CEQA), the California Department of Water Resources (DWR) has prepared this Draft Initial Study Environmental Checklist (IS) and Notice of Intent (NOI) to Adopt a Mitigated Negative Declaration (MND) to address the environmental consequences of implementing the proposed Collecting Canal Maintenance of Project No. 6 (c) (proposed Project).

The objective of the proposed Project is to restore and maintain the designed channel capacity and repair flood conveyance structures of the drainage system east of the Sutter Bypass in order to minimize flood risk. California Water Code Section 8361 (c) describes that the State will maintain "the collecting canals, sumps, pumps, and structures of the drainage system of Project No. 6 east of the Sutter Bypass." Maintenance activities include: sediment removal from approximately 60 miles of collecting canals; bridge repair and maintenance of three bridges (CC-2, CC-4, EL-1A); and culvert repair, replacement, or removal. These facilities are located between the Sutter Buttes (south of Colusa, California) and Nicolaus, California (north of Sacramento). They are maintained by DWR's Sutter Maintenance Yard (SMY) and are part of the Sacramento River Flood Control Project (SRFCP).

The proposed Project is authorized and sponsored by DWR's Division of Flood Management, Flood Maintenance Office (FMO).

This document includes:

- An IS Environmental Checklist (consistent with Appendix G of the CEQA Guidelines)
- Proposed NOI to Adopt an MND to satisfy CEQA requirements

Following completion of the required public comment period for the NOI to Adopt the MND (including the Draft IS), DWR intends to adopt the MND and the Mitigation Monitoring and Reporting Program (MMRP) and to approve the proposed Project.

1.1 Purpose of the Mitigated Negative Declaration

This IS and NOI to Adopt a MND was prepared in accordance with the CEQA Public Resources Code (PRC) Section 21000 et seq. and the CEQA Guidelines, Title 14 California Code of Regulations (CEQA Guidelines) Section 15000 et seq. The purpose of the IS is to: (1) determine whether project implementation would result in potentially significant or significant effects to the environment and (2) incorporate mitigation measures into the proposed Project design, as necessary, to eliminate the project's potentially significant or significant project effects or reduce them to a less-than-significant level. The Environmental Checklist completed as part of the IS presents the analysis and substantial evidence supporting its conclusions regarding the significance of environmental impacts. Substantial evidence may include expert opinion based on facts, technical studies, or reasonable assumptions based on facts. The

analysis in the IS Environmental Checklist is not intended nor required to include the level of detail used in an Environmental Impact Report (EIR).

As specified in the CEQA Guidelines Section 15064 (a), if there is substantial evidence (such as the results of an IS) that a project, either individually or cumulatively, may have a significant effect on the environment, the lead agency must prepare an EIR. The lead agency may instead prepare a Negative Declaration if it determines there is no substantial evidence that the project may cause a significant impact on the environment. The lead agency may prepare an MND if, in the course of the IS analysis, it is recognized that the project may have a significant impact on the environment but that implementing specific mitigation measures would reduce any such impacts to a less-than-significant level (CEQA Guidelines, Section15064(f)(2)).

DWR has prepared this IS to evaluate the potential environmental effects of the proposed Project and has incorporated mitigation measures to reduce or eliminate identified potentially significant project-related impacts. Therefore, an NOI to Adopt an MND has been prepared for this project. This MND will be used by other agencies to support discretionary decisions for issuing permits needed to conduct the on-going maintenance activities described under the proposed Project.

1.2 Summary of Findings

This document includes an Environmental Checklist that contains the analysis and discussion of potential environmental impacts of the proposed Project. Based on the analysis, it was determined that the proposed Project would have no impacts related to the following issue areas:

- Land Use and Land Use Planning
- Mineral Resources
- Population and Housing
- Public Services
- Recreation

The proposed Project would result in less-than-significant impacts on the following issue areas:

- Aesthetics
- Geology, Soils, and Seismicity
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Utilities and Service Systems

The proposed Project would result in less-than-significant impacts *following mitigation* on the following issue areas:

- Air Quality
- Agriculture and Forest Resources
- Biological Resources
- Cultural Resources
- Hydrology and Water Quality
- Noise
- Transportation and Traffic
- Mandatory Findings of Significance

1.3 Document Organization

This document is divided into the following chapters:

Notice of Intent to Adopt a Mitigated Negative Declaration. The NOI to Adopt an MND provides notice to responsible and trustee agencies, interested parties, and organizations of DWR's intent to adopt an MND for the proposed Project.

Chapter 1 – Introduction. This chapter provides an introduction to the project, the purpose of the IS/MND, the summary of findings, and the organization of this IS/MND.

Chapter 2 – Project Description. This chapter describes the whole action involved, including but not limited to later phases of the project, and any secondary, support, or off-site features necessary for its implementations, as well as general background.

Chapter 3 – Initial Study Environmental Checklist. This chapter presents an analysis of environmental issues identified in the CEQA Environmental Checklist and determines, for each issue area, whether project implementation would result in no impact, a less-than-significant impact, a less-than-significant impact with mitigation incorporated, or a potentially significant impact on the environment. If any impacts were determined to be potentially significant, an EIR would be required. For this project, however, mitigation measures have been incorporated where needed to reduce all potentially significant impacts to a less-than-significant level.

Chapter 4 – References. This chapter lists the references used in preparation of this IS/MND.

CHAPTER 2
Project Description

2.1 Introduction

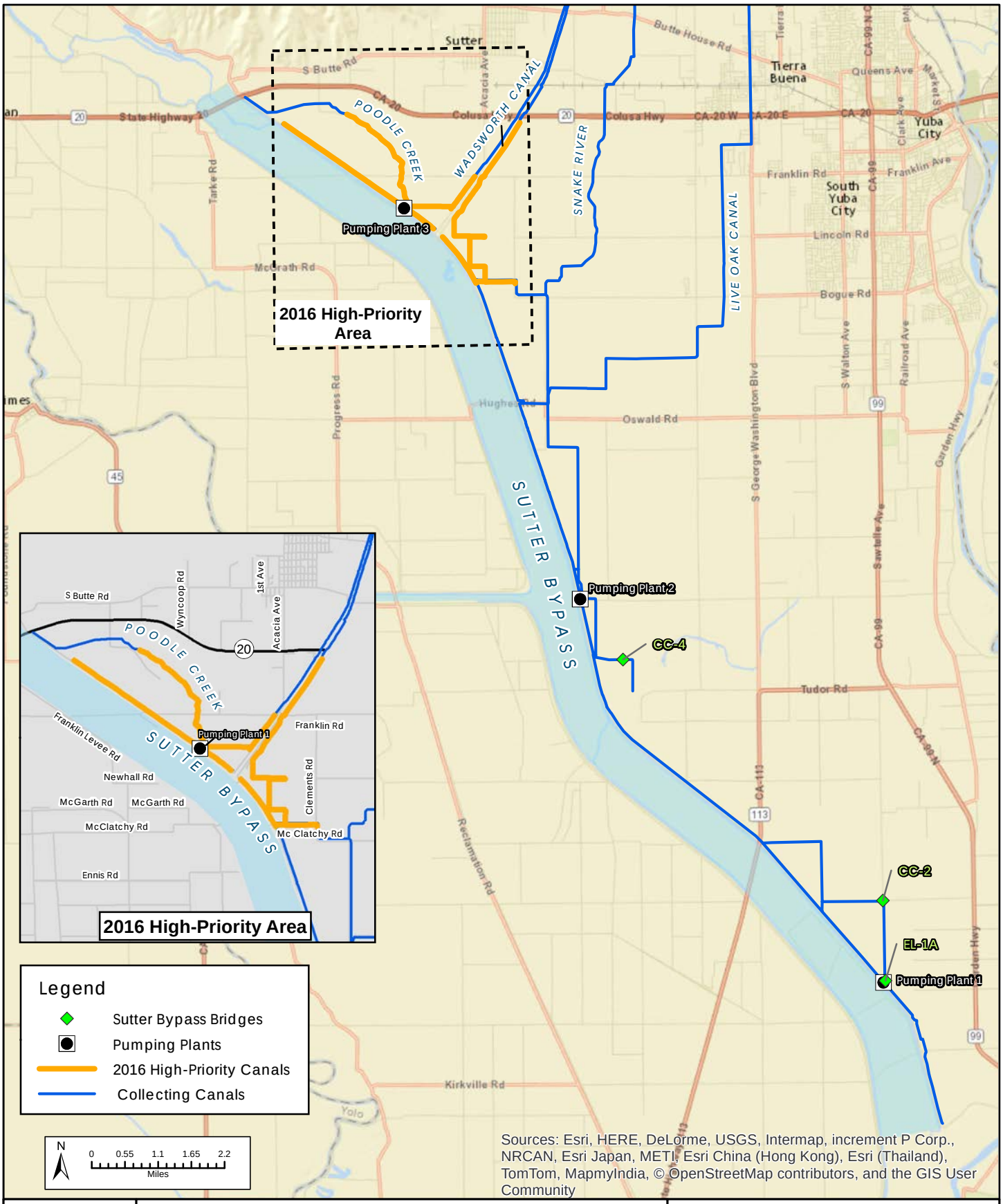
DWR's FMO proposes to address the environmental consequences of implementing ongoing maintenance activities along the drainage system east of the Sutter Bypass in order to maintain channel capacity and increase flow to minimize flood risk. DWR's FMO is mandated to maintain and operate this facility on behalf of the State of California per California Water Code Section 8361 (c). Maintenance activities on the collecting canals (proposed Project) include: sediment removal; bridge repair and maintenance of three bridges (CC-2, CC-4, EL-1A); and culvert repair, replacement, or removal; and debris removal, woody vegetation removal, or vegetation spraying associated with these activities. These facilities are maintained by the SMY, and are part of the SRFCP.

This Project description of the proposed activities was developed based on discussions with DWR staff and review of the following existing documents:

- The Feather River Habitat Conservation Plan Description of Covered Activities (H.T. Harvey & Associates, in prep.)
- Operation and Maintenance of California's Sacramento and San Joaquin River Flood Control Projects Superintendent's Guide to Operations and Maintenance (Draft), version 03.3 (DWR 2014a)
- California Department of Fish and Wildlife (CDFW) Streambed Alteration Agreement for Division of Flood Management Routine Maintenance (CDFG 2011)
- Sediment removal project descriptions for the South Sutter Main Drain (DWR 2013)
- Culvert repair project at Hughes Road (DWR 2014b)
- Sutter Bypass Study (DWR 1976)

2.2 Proposed Project Location

The collecting canal maintenance occurs along approximately 60 miles of canals, located between the Sutter Buttes (south of Colusa, California) and Nicolaus, California (north of Sacramento) (**Figure 1**). DWR's FMO is mandated to maintain and operate this facility on behalf of the State of California per California Water Code Section 8361 (c). As a result of the construction of the east levee of the Sutter Bypass under the direction of the Reclamation Board prior to the creation of DWR, several natural drainage channels were cut off from their historic flow patterns. To remedy the drainage issues east of the Sutter Bypass, DWR installed three pumping plants and several collecting canals to route the excess surface water into the Sutter Bypass. Pumps were included in the original 1920 design and 1924 construction (DWR 1976). Several bridges were constructed over the intercepting canals and the East Borrow Canal (EBC) of



Division of Flood Management
Flood Maintenance Office

SCALE IN MILES

Figure 1
Project No.6 Collecting Canals
Project Area

the Sutter Bypass to provide access for property owners that lost access as a result of the construction of Project No. 6. There are three known documents that outline the State's maintenance responsibilities for the collecting canals: California Water Code; Sutter Bypass Deed File (SRB Deed File), which is maintained by DWR; and the 1953 Memorandum of Understanding (MOU) between the State of California and the U.S. Army Corps of Engineers (USACE) regarding operation of the Sacramento River Flood Control Project.

2.3 Project History and Need

Throughout the history of California's flood protection system, flood conveyance channels have been designed to meet certain minimum flow standards. Natural sedimentation from upstream sources leads to gradual accumulation of sediments in channels, specifically, behind structures and where dense vegetation grows within the channel. Sediment removal from the collecting canals is a necessary part of flood system maintenance.

In recent years, sediment accumulation in the collecting canals has increased as a result of land use changes and deferred maintenance. Agricultural land use patterns have increasingly shifted from dry or irrigated pasture to rice production. Water-intensive rice production uses fields that are flooded during the spring and summer growing seasons and typically the water is drained in September before harvest. This has increased the amount of drainage into the collecting canals during the late summer, and consequently increased sediment deposition in the canals. Local sediment sources include agricultural fields as well as sloughing of channel banks as a result of high flows. Urbanization in the Project area is another factor. The communities of Yuba City, Sutter, and Live Oak use these collecting canals to drain their runoff.

In addition, sediment removal activities have been postponed in recent years because of limited funding and the lengthy and complex environmental review and permitting process. This leads to increased flood risk due to reduced channel capacity, as well as establishment of woody, emergent, and aquatic vegetation (floating and submerged) within the channel in many areas.

Maintaining channel capacity allows the system to function as intended to reduce the risk of flooding and infrastructure failures. Immediate and ongoing removal of accumulated sediment, and associated vegetation and debris, from the collecting canals would restore channel capacity to meet the demands of changing land use and reduced flood risk to the surrounding Project area (see Figure 1).

This Project meets the goals and objectives of the 2012 Central Valley Flood Protection Plan by maintaining existing flood infrastructure. This work would be incorporated into the programmatic permitting for DWR's maintenance activities included in the Evaluation of Environmental Permitting for Operations and Maintenance (EPOM).

2.4 Project Objectives

The overall goal of the proposed Project is to restore and maintain the designed channel capacity and repair flood conveyance structures. To achieve the Project goal, specific objectives include the following:

- Remove sediment and associated vegetation from the channel to a depth sufficient to minimize vegetation establishment and to convey high flows without overtopping the banks.

- Remove large obstructions from the channel that block flow and trap sediment, thereby reducing the level of effort for ongoing channel clearing.
- Repair and maintain existing infrastructure along the collecting canal system, including bridges and culverts.

2.5 Description of Work

The activities that are analyzed in this CEQA document are summarized in **Table 1** and detailed in following sections.

TABLE 1.
SUMMARY OF PROJECT ACTIVITIES BY FEATURE AND ACTIVITY TYPE

Feature	Activity	Summary
Collecting Canals	Sediment removal	Removal of accumulated sediment and aquatic vegetation from wetted portions of channels to restore channel capacity, thereby reducing flood risk.
	Vegetation chemical treatment	Chemical treatment of vegetation in canals.
	Woody vegetation removal	Limbing, trimming, and removal of woody vegetation to facilitate access for sediment removal activities and maintain water conveyance.
Structures	Debris removal	Removal of woody debris, beaver dams, and trash from culverts to protect facilities, prevent erosion, and maintain capacity.
	Bridge maintenance, repair, and replacement	Replacement or repair of bridge decking and support structures to prevent erosion and bridge failure.
	Culvert repair, replacement, and removal	Repair, replacement, or removal of culverts to maintain conveyance and avoid flooding and scouring.

2.6 Collecting Canals

Sediment removal from collecting canals involves removing or displacing accumulated sediment and associated vegetation in the channel up to Ordinary High Water Mark (OHWM). This includes submerged aquatic vegetation (SAV), floating aquatic vegetation (FAV), and woody and emergent plants rooted below the water level in the center of the channel.

The Project area covers a total of 60 miles of canals to be cleared over the next several years (Figure 1). Individual sediment removal sites along collecting canals range in length from several hundred feet up to 3 miles. The collecting canals prioritized for clearing in 2017 cover 12 miles near Pumping Plant 3 (Figure 1 inset).

This section describes sediment removal activities (2.6.1) as well as associated activities that may be conducted in advance of actual sediment removal, such as vegetation chemical treatment (2.6.2), or woody vegetation trimming or removal (2.6.3).

2.6.1 Sediment Removal from Collecting Canals

Maintenance Activities

DWR will remove or displace silt, sand, gravel, or other sediment from wetted drainage ditches, canals, or in the immediate vicinity (i.e., within 50 feet) of man-made facilities or structures associated with the collecting canals, such as pumping plants, culverts, or bridge structures.

The SMY staff would use a long-reach excavator with a digging bucket that would travel along the agricultural operation access roads and canal banks and remove sediment from the canal (see photos in **Appendix A, Sediment Removal Activities Photos**). Material and equipment would be staged on-site as work is being completed, and access would be on the existing rights-of-way or farm road with given permission. Existing roads or previously disturbed areas in the vicinity of the collecting canal or associated facilities would be used whenever feasible. If previously undisturbed areas are used for staging or spoils, appropriate avoidance and minimization measures would be followed. The excavator would work on either side of the channel depending on access, and would avoid areas with dense riparian vegetation, where feasible. Access would be either from the side of the canal that abuts the Sutter Bypass levee toe, or from the canal side with the access road. If necessary to provide access and maneuvering room for the excavator's boom arm, maintenance staff would trim or remove woody vegetation (as described in Section 2.6.2).

The excavator would scoop the sediment from the center of the channel to avoid damaging vegetation growing along the banks of the canal and to avoid damaging the bank (see photos in Appendix A). Vegetation that is growing in the center of the canal would also be removed mechanically by uprooting and placing plants with the spoils using the excavator bucket. Sediment would be removed to the depth of one bucket scoop, resulting in approximately 1 cubic yard (cy) of sediment deposited per 6 linear feet of canal. The desired depth is 4 feet below the OHWM. For the pumping plants, sediment would be excavated to maintain a water depth of up to 20 feet deep in front of the intake to ensure proper functioning of the facility. For the culverts, sediment would be excavated at inflow and outflow points to an appropriate depth.

Excavated sediment would be placed in the center of access roads or near the toe of the levee to avoid the noncompacted shoulders of the road and canal banks to the maximum extent practicable. In some cases, such as along the Sutter Bypass, sediment may be placed at the landside base of the levee to avoid disturbance to canal banks. In all cases, sediment placement is limited by the range of the excavator arm (maximum reach 30-40 feet). Aquatic, woody, and emergent vegetation within the channel that is removed with sediment would also be piled together with the excavated sediment. If the material removed from the collecting canal is primarily vegetation with very little or no sediment, it would be spread to dry and would not be left in piles near the canal as this could attract wildlife. The area covered with spoils would be a strip approximately 20 feet along one side of the canal, totaling approximately 28 acres for the priority 12 miles in first year, and approximately 145 acres for the entire project area (60 miles of canals).

The excavated sediment would be left to dry. Drying time varies based on the time of year. Sediment removed and piled in the summer may take 1–3 months to dry, while sediment removed and piled in the fall may take 8–10 months to dry. The SMY will plan to spread sediment spoils during the GGS active season between May 1 and October 1, but landowners of access roads may also carry out this work earlier. DWR will encourage landowners to spread the sediment between May 1 and October 1.

Frequency

The SMY typically clears 12 to 20 miles of canals per year, out of the approximately 60 miles in the Project area. The SMY's goal is a 3-year maintenance rotation for the collecting canal system. This means sediment removal typically occurs once every 3 years for a given segment of canal. Sediment removal recurrence can vary from every 2 to 5 years, depending on the local rate of sediment accumulation in a particular canal.

The following conditions indicate high priorities for implementing sediment removal:

- Canals that are feeding sumps at the Sutter Bypass Pumping Plants remain full even when the water elevation immediately around the pumps decreases quickly.
- Upstream areas overtop and produce localized flooding, while in the downstream collecting canals water elevations appear to be sufficiently low.
- Farmers' irrigation pumps are buried in sediment.
- Water levels in canals directly upstream and downstream of pumps remain higher than in the downstream canal portion, which prevents water from getting to downstream pumps.

Timing

Sediment removal from collecting canals would generally be carried out between May to October. However, it could also take place in the fall or winter, depending on anticipated weather conditions and access to the farm roads. Sediment removal would be easiest in the fall to winter following the rice harvest and when water levels are lowest in the canals. Approximately one-third (4 miles of the 12 miles of high-priority canals, and 20 miles of the total 60 miles) of canals are located along the Sutter Bypass, where DWR has access and therefore greater flexibility for timing of removal, spoil placement, and grading. Sediment removal on these areas would be conducted during May-October. Summer spoil placement on these canals would total approximately 10 acres along high-priority canals, and about 48.5 acres over the whole area. For those canals on private lands where DWR does not have an easement for access (approximately 8 miles of high-priority canals, and 40 miles total), sediment removal may occur during the fall or winter. Fall-winter spoil placement could cover up to 20 acres along approximately 8 miles of high-priority canals and could cover about 97 acres for 40 miles. DWR will work with landowners to conduct sediment removal during the summer as much as possible.

Sediment removal from 12 to 20 miles of collecting canals each year would require approximately 50 workdays for three crews.

2.6.2 Vegetation Chemical Treatment

Typically, the nonnative aquatic vegetation specifically targeted for removal includes water hyacinth (*Eichhornia crassipes*), water primrose (*Ludwigia peploides, L. hexapetala*), parrot-feather (*Myriophyllum aquaticum*), giant Asian dodder (*Cuscuta japonica* var. *formosana*), and water lettuce (*Pistia stratiotes*). This vegetation is common in toe drains, seepage ditches, and collection canals. However, emergent and woody vegetation rooted in the center of the canal is also treated in order to maintain water conveyance in the canals.

While sediment removal can be performed with vegetation in the canal, and is effective at removing vegetation at the same time, dense vegetation in the canal may obscure biological monitoring. In addition to routine chemical treatment, chemical treatments may also be used prior to sediment removal.

As a transitory activity, the process of chemical treatment typically includes moving through the landscape without stopping in a particular area for a prolonged period of time. This activity involves the forward movement of a vehicle through the project area, mostly in a linear fashion, with a person outside the vehicle spraying. Typically, the activity does not return to the same area during a single treatment.

Maintenance Activities

Chemical treatments may be used to treat water primrose and other vegetation in the center of the canal. Treating dense vegetation ensures better water flow and can provide better visibility for biological monitoring during canal clearing. All chemical treatments will be made according to label specifications and will be done by or under the supervision of a Qualified Certified Applicator. Chemical treatments would abide by the laws, requirements, and guidelines established by the California Department of Pesticide Regulation (CDPR) and under enforcement review of the county agriculture commissioners. A licensed Pest Control Advisor (PCA) will be available to provide written recommendations for all applications and will hold himself/herself as authority. All PCA recommendations will be followed as written. Chemical treatments are applied using a tractor and trailer-mounted storage tank with a high-pressure pump or a truck-mounted spray system with a hose and reel for large, contiguous areas, while spot applications are made using a hand-held or backpack pump sprayer.

Frequency

Vegetation chemical treatment is implemented based on need and according to pesticide label requirements. In some areas vegetation is removed or treated every year, while in others vegetation is removed or treated every other year or every several years. The return interval is based on the size and density of the vegetation cover in the canal, which contributes to the effectiveness of each treatment.

Timing

Chemical treatments of water primrose and other aquatic weeds as well as emergent and woody vegetation in the center canal are usually conducted when this vegetation is densest in the spring and summer.

2.6.3 Woody Vegetation Removal

Within the Project area, the banks of collecting canals are typically devoid of trees. However, there are isolated areas where trees that are present along the canal bank may need to be trimmed or removed to facilitate equipment access.

Maintenance Activities

Trimming and removal of woody vegetation along the canals would be carried out using handheld tools, such as loppers and tree saws, and power tools, such as chainsaws. California native trees with a diameter at breast height (dbh) greater than 4 inches would be removed only if necessary to avoid imminent damage to structures or facilities. Cuttings and trees would be mulched up and left on-site, hauled off-site to an appropriate solid waste or commercial composting facility, or piled and burned. Piled vegetation can be

burned in place when permitted by the local air quality management district. DWR would apply for an open burning permit prior to any vegetation burning activities as required in the Feather River Air Quality Management District's (FRAQMD's) Rule 2.0.

Frequency

For vegetation removal associated with sediment removal activities (approximately 12 to 20 miles of canals cleared per year, out of the approximately 60 miles.), the recurrence interval is approximately once every 3 years on typical maintenance rotation, but may range from 2 to 5 years.

Timing

Woody vegetation trimming and removal can be carried out throughout the year but is most often completed in the spring, summer, and fall in association with sediment removal from collecting canals and with bridge repair and maintenance.

2.7 Debris Removal

Debris removal is an ongoing activity necessary to maintain collecting canals, and typically occurs at culverts and bridges. It is necessary to prevent blockage of flow, acceleration of erosion, and possible damage to the facilities. Debris includes: flood-deposited vegetation, beaver dams, fallen trees, tires, and other trash items. Debris and sediment tend to deposit in the same locations, resulting in obstructed flow and reduced channel capacity.

2.7.1 Maintenance Activities

Debris would be removed from the canal at culverts and bridges using hand tools, tractors, truck-mounted cranes, excavators, and backhoes, depending on the type of material and area of removal. Nonorganic materials would be hauled off-site to certified disposal sites, while organic material would be chipped for mulch, burned on-site, or hauled to a certified disposal site by pickup or dump truck. Debris would not be left in piles near the canal as this attracts wildlife. Debris would either be removed from the site immediately or spread out onto existing roads or previously disturbed areas whenever feasible.

2.7.2 Frequency

In general, debris removal activities would occur on an as-needed basis to be determined by SMY staff. Farmers or the County may notify the SMY to share information about drainage issues on the collecting canals.

Timing

Debris removal work occurs year round and generally takes 2 days to complete, although up to 1 week may be needed to clear debris after a high-water event.

2.8 Bridge Maintenance, Repair, and Replacement

Three bridges located within the Project area require periodic repair and maintenance to ensure their operability and limit damage to other structures (see Figure 2-1 for location of bridges). These bridges

include: CC-2, a wood bridge with a concrete deck; CC-4, an all-wood bridge; and, EL-1a, a railroad flatcar bridge with a cement deck. Failure of a bridge can occur as a result of corrosion and collapse, which can lead to internal erosion of a bank or road, and loss of access to farm property and flood control structures (e.g., water control structures) for potential flood fight operation and required maintenance.

This section describes general maintenance and repair activities (2.8.1) and specific repairs for Bridges CC-2 (2.8.2) and CC-4 (2.8.3), which are a high priority for 2017. Additional maintenance activity information for Bridges CC-2 and CC-4 is presented in **Appendix B, Bridge CC-2 Maintenance Activities** and **Appendix C, Bridge CC-4 Maintenance Activities**, respectively.

2.8.1 General Bridge Maintenance

Maintenance Activities

Typical bridge maintenance includes removing woody debris from the waterway within 50 feet of the bridge; spraying or removing vegetation near bridge abutments and foundation supports; controlling erosion (i.e., through revetment placement and minor earthwork) near the foundation supports, abutments, and wing walls; and repairing and replacing bridge decking, wing walls, abutments, and approaches. Bridges may include in-channel pilings or concrete abutments and adjacent riprap that may need to be repaired when cracks or spalls occur.

Frequency

Bridge maintenance is conducted on an as-needed basis. A Bridge Inspection Program conducted by the SMY is used to prioritize maintenance and repairs.

Timing

Maintenance and repair activities are typically carried out between May 1 and October 1. Duration of activities is typically between 1 and 30 days.

2.8.2 Bridge CC-2 Maintenance

The existing Marcuse Road Bridge (CC-2) is a single-lane, single-span bridge consisting of timber and concrete components that spans a collecting canal that transports water to Pumping Plant No. 1. The bridge is located approximately 1.5 miles west of Highway 99 where Marcuse Road intersects Sawtelle Avenue in Sutter County, approximately 1.35 miles north of Pumping Plant No 1. The CC-2 bridge is located within the Sutter Causeway 7.5-minute U.S. Geological Survey (USGS) quadrangle, Township 13N, Range 3E, Section 22, located at latitude 38.952232 N and longitude 121.634776 W. CC-2 provides access to the Sutter Basin Conservation Bank, a 429-acre managed marsh managed by Westervelt Ecological Services. The DWR Division of Engineering (DOE) performed a structural evaluation that noted the severely deteriorated condition of the timber members due to dry-rot and lack of proper foundation support. DOE recommended the bridge not be used. It has been closed to traffic since 2015. The bridge will be replaced with a set of precast box culverts. Figures B-1 through B-3 in Appendix B shows the plan view and cross sections of the proposed repairs. Figure B-4 presents the estimated impact area at Bridge CC-2. Figures B-5 and B-6 shows the existing bridge structure and Figure B-7 shows the staging area.

Maintenance Activities

DWR will install six precast box culverts, approximately 8 feet wide by 9 feet tall by 8 feet long, oriented so the final culvert is approximately 16 feet wide by 9 feet tall by 22 feet long. Construction equipment anticipated to be used for this work includes pickup trucks, dump trucks, concrete trucks, an excavator, concrete saw, crane, dozer, and a backhoe.

Beginning in May 2017, SMY will mobilize equipment and material to the site. Any exclusion fencing will be installed before construction begins. Fencing will be trenched into the ground no less than 6 inches using a trencher and hand shovels. Vegetation will be cleared from the site including the staging areas using an excavator and dozer. DWR will install a turbidity curtain or a series of turbidity curtains in the channel to contain any sediment that may enter the water source during construction, as appropriate. An earthen cofferdam will be constructed upstream and downstream of the bridge to facilitate dewatering the site before demolition of the existing bridge. The cofferdam will span the canal from bank to bank. Soil will be trucked in from an offsite location to construct the cofferdams. Any entrapped water in the dewatered area will be pumped back into the collecting canal with submersible pumps. Another pump will be used to divert the upstream water flow away from the dewatered area and back into the downstream side of the canal.

Once the site has been dewatered an excavator will dig out the soil around the existing bridge. A crane will remove the existing timber and concrete bridge and load it into dump trucks for off-haul. The existing timber and concrete bridge will be taken to an appropriate disposal site. Spoils will be stockpiled at the staging area. Approximately 500 cubic yards (cy) of soil will be removed to facilitate the demolition of the bridge. The spoils will be re-used on-site, with any excess spoils off-hauled and stockpiled at the SMY for future use or spread across the staging area. A foundation pad will be constructed by excavating approximately 2 feet of canal bed material across the footprint of the culverts and placing a layer of compacted 6-inch crushed rock, ¾-inch aggregate base, and sand bedding within the excavation. A crane will be used to set the new box culverts (bridge) in place. Afterwards, the banks behind the bridge will be backfilled with the on-site spoils. Spoils will be placed within 6 inches of the finished grade, and then ¾-inch aggregate base will be placed for the upper 6 inches and match the existing grade. The aggregate base will be compacted to 95 percent of its relative compaction. Revetment will be installed adjacent to the culvert along the canal banks to prevent future erosion.

Precast concrete headwalls (including wingwalls) will be installed around each end of the box culvert. New revetment will be placed adjacent to the culvert to tie into the existing canal banks. A total of approximately 220 cy of 18-inch minus revetment will be placed immediately upstream and downstream, 120 cy below the OHWM and 100 cy above OHWM. Approximately 0.10 acres will be disturbed due to excavating the existing structure, preparing the foundation pad, and construction of the new bridge.

Most vehicles and materials will be driven or hauled to and from the site daily. If equipment and materials are staged at the project site, they will be staged or stockpiled along Marcuse Road and on Westervelt's property. The haul routes for the equipment, materials, and excess excavated material will be limited to existing county roadways and easements. SMY staff will travel to and from the site on existing roads during construction.

Upon completion of the Project, DWR will continue its program of routine annual maintenance of the collecting canals. This includes: removal of debris, spraying herbicides, mowing and/or burning of

vegetation on slopes, rodent control using rodenticides, grouting of rodent holes or other voids in levees, and minor erosion repairs.

Frequency

This activity is a one-time repair.

Timing

The repair work is expected to take approximately 5 weeks to complete and would be carried out beginning on June 20, 2017. All construction activity would be completed by November 15, 2017.

2.8.3 Bridge CC-4 Maintenance

Bridge CC-4 is a wooden bridge that crosses the Collecting Canal and is located approximately 4 miles west of Highway 99 and is approximately 1 mile upstream of Pumping Plant No. 2. The project site is located on a dirt road. The closest county road is Obanion Road. The bridge is located within the Gilsizer Slough 7.5-minute U.S. Geological Survey (USGS) quadrangle, Township 14N, Range 2E, Section 35, located at latitude 39.011060 N and longitude 121.713630 W. (Figure C-1 in Appendix C). The bridge is used by the adjacent property owners to transport farm equipment and vehicles to and from the property. The bridge was deemed unsatisfactory as a result of extensive erosion along the bridge abutments resulting in a separation of the bridge and the canal bank and access road. Figures C-2 through C-4 in Appendix C shows the view of the existing bridge structure and where the repairs are needed. Figure C-5 shows the proposed repairs and C-6 presents the estimated impact area at Bridge CC-4.

Maintenance Activities

The repair will include work needed to connect the bridge structure to the access roads to avoid separation and erosion around the perimeter of the structure. First, appropriate exclusion fencing will be installed at no less than 6 inches deep. Construction will include abutments and aprons on both sides of the existing bridge. To construct concrete footings to support the bridge deck and approach apron, trenches measuring approximately 1 foot wide by 8 feet deep by 28 feet long will be dug using an excavator or backhoe. The excavated material will be used on-site or spread onto the existing access road. The trenches will be filled with concrete and bolted to the existing bridge. In addition, a concrete apron (8 feet by 8 feet) and bridge deck extension (4 feet by 26 feet) will be constructed on both sides of the bridge. The wood of the bridge will be sealed at the abutments to prevent future dry rot, and new revetment will be placed at the base of the bridge abutments. Approximately 120 cy of 18-inch minus revetment will be placed 60 cy below the OHWM and 60 cy above.

The construction methods will be similar to those described above for repair of Bridge CC-2. A dump truck, backhoe, excavator, and cement truck, as well as hand tools, will be used to complete the work. Approximately 21 cy of soil will be replaced with approximately 21 cy of concrete for the footings and apron.

Frequency

This activity is a one-time repair.

Timing

The repair work is expected to take 20 days to complete and would be carried out in May 2017.

2.9 Culvert Repair, Replacement, and Removal

Culverts may require clearing and replacement, or upgrading. Many existing culverts are undersized relative to the amount of water that is currently passing through the canals, particularly through the summer and fall when rice fields are being drained and during winter storm events.

Culverts must be repaired or replaced to maintain conveyance and avoid potential safety hazards associated with flooding and scouring. Additional goals for culvert repair may include reducing annual maintenance requirements and improving wildlife passage.

Maintenance Activities

Culvert maintenance often includes repairing erosion around the culvert inlet and outlet and replacing wing walls or headwalls.

Existing culverts would be excavated and removed, or repaired in place. In some cases, over-excavation would be used to facilitate safe repairs on the culvert or to repair voids. Excavated soil would be used on-site, hauled off-site and stockpiled at an existing stockpile location, or disposed of at an appropriate facility. The old culvert structure material would be removed and off-hauled to the nearest recycling or county disposal facility. Erosion repairs (e.g., revetment installation) also may be made around the culvert inlet and outlet, and erosion control measures would be in place during construction. If necessary, water would be diverted around the construction site with temporary dams and submersible pumps. Vegetation also may be cleared from the work area to provide access for construction equipment or new culverts. No native vegetation would be removed greater than 4 inch dbh. Equipment used could include hand tools, bulldozers, excavators, vibratory compactors, cranes, pickup trucks, dump trucks, concrete trucks, and backhoes. Following construction, disturbed areas would be restored to pre-activity conditions through native plantings or seeding.

Construction footprints associated with culvert repair or replacement, including staging and stockpiling areas, may be as large as 1 acre. Construction equipment and materials would be staged in designated landside areas adjacent to the work sites. Existing roads (maintenance toe and agricultural access roads) and disturbed areas would be used as staging sites to the maximum extent possible for Project staging and access to avoid adversely affecting previously undisturbed areas. These activities may occur anywhere in the Project area.

Frequency

Culvert maintenance and repair is conducted on an as-needed basis, with an estimated 10 culverts repaired over 5 years (approximately 2 culverts per year). The average life expectancy of corrugated metal culvert is 50 years.

Timing

Work may take up to 1 month to complete and typically occurs in May after winter floods but before water drains from rice fields.

CHAPTER 3
Environmental Checklist

3.1 Initial Study

1.	**Project Title:**	Collecting Canal Maintenance
2.	**Lead Agency Name and Address:**	California Department of Water Resources Division of Flood Management Flood Maintenance Office 3310 El Camino Ave, Suite 140 Sacramento, CA 95821
3.	**Contact Person and Phone Number:**	Jeff Schuette (916) 574-1355
4.	**Project Location:**	Sutter County, CA
5.	**Project Sponsor's Name and Address:**	Same as above
6.	**General Plan Designation(s):**	Valley Floor Agriculture
7.	**Zoning Designation(s):**	Cropland

8. Description of Project:

The proposed Project addresses the environmental consequences of implementing ongoing maintenance activities on the collecting canal system of Project No. 6 in order to maintain channel capacity and increase flow to minimize flood risk. The main components of the proposed project include sediment removal from collecting canals (totaling approximately 60 miles), and maintenance and repair of associated bridges and culverts. DWR staff would perform all aspects of the maintenance work. It is anticipated that sediment removal would occur on a 3- to 5-year rotating basis, with approximately 12 to 20 miles of collecting canal cleared each season.

9. Surrounding Land Uses and Setting. (Briefly describe the project's surroundings.)

Agricultural uses, rural residential.

10. Other public agencies whose approval is required: (e.g., permits, financing approval, or participation agreement. Indicate whether another agency is a responsible or trustee agency)

- California Department of Fish and Wildlife (CEQA responsible and trustee agency)– Fish and Game Code Section 1600 Streambed Alteration Agreement and Fish and Game Code Section 2018 Incidental Take Permit
- U.S. Army Corps of Engineers – Clean Water Act Section 404 Permit
- Central Valley Regional Water Quality Control Board (CEQA responsible agency)– Clean Water Act Section 401 Water Quality Certification
- U.S. Fish and Wildlife Service – Endangered Species Act Section 7 Consultation
- National Marine Fisheries Service – Endangered Species Act Section 7 Consultation and Sustainable Fisheries Act Essential Fish Habitat Conservation Recommendations
- California Office of Historic Preservation – National Historic Preservation Act Section 106 Consultation

3.2 Environmental Factors Potentially Affected

The proposed Project could potentially affect the environmental factor(s) checked below. The following pages present a more detailed checklist and discussion of each environmental factor.

☐ Aesthetics	☒ Agriculture and Forestry Resources	☒ Air Quality
☒ Biological Resources	☒ Cultural Resources	☐ Geology, Soils and Seismicity
☐ Greenhouse Gas Emissions	☒ Hazards and Hazardous Materials	☒ Hydrology and Water Quality
☐ Land Use and Land Use Planning	☐ Mineral Resources	☒ Noise
☐ Population and Housing	☐ Public Services	☐ Recreation
☒ Transportation and Traffic	☐ Utilities and Service Systems	☒ Mandatory Findings of Significance

DETERMINATION: (To be completed by Lead Agency)
On the basis of this initial study:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, no further environmental documentation is required.

Signature Acting Chief, Flood Maintenance Office

DAVID J.W. WHEELDON
Printed Name

7/5/2016
Date

Department of Water Resources
For

3.3 Environmental Checklist

3.3.1 Aesthetics

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less-Than-Significant Impact*	*No Impact*
1. AESTHETICS — Would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐
d) Create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the area?	☐	☐	☐	☒

Environmental Setting

The proposed Project area is primarily adjacent open, low-elevation, flat agricultural land situated within the Central Valley. Visual features in the viewshed include row crops, agricultural equipment, agricultural buildings, scattered rural housing, and existing infrastructure such as roadways, highways, fences, and utility lines. Given the rural nature of the Project area, there are unobstructed views of surrounding mountain ranges, agricultural land, and natural wildlife areas.

There are numerous scenic views within the Project area, including views of the Sutter Buttes, the Coast Range, the Sierra Nevada Range, the Sutter Bypass, and the Sutter National Wildlife Refuge. The Sacramento River creates a lush riparian viewshed to the west of the Project area.

A review of the current California Department of Transportation (Caltrans) maps of Designated State Scenic Highways indicated that there are no officially designated or eligible scenic roadways in Sutter County (Caltrans 2015).

Discussion

a) **Less than Significant Impact.** Maintenance activities associated with the proposed Project would introduce large- and small-scale construction equipment to the rural landscape that would be visible from some public locations that also provide views of the scenic resources. For example, motorists on State Route 20 and State Route 99 could have views of the area disrupted. However, although maintenance equipment could use some relatively tall pieces of equipment (e.g., cranes), this equipment would not be a substantial enough size or width to block views of the scenic vistas. Collecting canal maintenance would be generally isolated and maintenance activities would be temporary and of short duration, lasting a maximum of a 50 days. Repair and maintenance of bridges and repair, replacement, or abandonment of pipes/culverts would take 30 days or fewer to complete.

Regarding potential long-term effects, proposed Project activities in and around the collecting canals would include permanent visual changes as a result of sediment removal, debris/obstruction removal,

and vegetation removal. However, channel activities would occur below grade when compared to the surrounding area and would not impede views of notable scenic vistas. Similarly, repair and maintenance of bridges and repair, replacement, or abandonment of pipes/culverts would not add new features to the viewshed that would block views of a scenic vista. Therefore, potential visual changes to the Project area resulting from proposed maintenance activities would have a less-than-significant impact on a scenic vista.

b) **No Impact.** A review of the current Caltrans Map of Designated State Scenic Highways indicated that there are no officially designated State scenic highways in Sutter County (Caltrans 2015). Therefore, proposed Project activities would not damage any designated scenic resources and no impact would occur.

c) **Less than Significant Impact.** The proposed maintenance activities in the collecting canals, repair and maintenance of bridges, and repair, replacement, or abandonment of pipes/culverts would be similar to existing maintenance activities. Removal of sediment and vegetation would result in minor visual changes to the Project area, but would not change or degrade the overall visual character of the Project area or its surroundings compared to existing conditions. Residents, local workers, and passers-by may view the maintenance activities for the duration of the proposed Project; however, maintenance activities would be temporary and there would be no permanent visual disturbance. Furthermore, any sediment removed and placed in piles would be disked into the ground once dry. Therefore, this impact would be less than significant.

d) **No Impact.** The proposed Project would maintain collecting canal flow capacity, repair and maintain bridges, and repair, replace, or abandon pipes/culverts. The proposed Project would not introduce new sources of light or glare. In addition, proposed Project activities would take place during daylight hours, and artificial lighting would not be required. As such, the proposed Project would not create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area**.** Therefore, no impact would occur.

3.3.2 Agricultural and Forest Resources

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
2. AGRICULTURAL AND FOREST RESOURCES — In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. **Would the project:**				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☒	☐	☐
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☒	☐	☐
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☒	☐

Environmental Setting

Agriculture Resources

The California Department of Conservation administers the Farmland Mapping and Monitoring Program (FMMP), California's statewide agricultural land inventory. Through this mapping effort, the California Department of Conservation classifies farmland under four categories: (1) Prime Farmland, (2) Farmland of Statewide Importance, (3) Unique Farmland, and (4) Farmland of Local Importance. Prime Farmland are those lands with the best combination of physical and chemical features able to sustain long-term agricultural production; Farmland of Statewide Importance is similar to Prime Farmland but with minor shortcomings, including greater slopes or less ability to store soil moisture; Unique Farmland has lesser quality soils and are used for the production of the State's leading agricultural crops; and Farmland of Local Importance are lands important to the local agricultural economy as determined by the county board of supervisors and a local advisory committee (California Department of Conservation 2012). The lands around the proposed Project area are designated primarily as Farmland of Statewide Importance with small areas of Prime Farmland as well.

Agricultural production is the dominant land use in central Sutter County and the lands that surround the Sacramento River. The lands around the proposed Project area are planted in rice, row crops and orchards.

The California Land Conservation Act of 1965, commonly referred to as the Williamson Act, enables local governments to enter into contracts with private landowners for the purpose of restricting specific parcels of land to agricultural or related open-space use. In return, landowners receive property tax assessments that are much lower than normal because they are based upon farming and open-space uses as opposed to full market value. Local governments receive an annual subvention of forgone property tax revenues from the State via the Open Space Subvention Act of 1971.

By State law, only land located in an agricultural preserve is eligible for a Williamson Act contract. In 2011, over 86 percent of Sutter County's lands were classified as agriculture, with roughly 48 percent of those lands designated as Prime Farmland and another 31 percent as Farmland of Statewide Importance. Approximately 15 percent of Sutter County's agricultural lands were protected under Williamson Act contracts. Portions of the existing collecting canals and existing flood infrastructure are located on lands currently in Williamson Act contracts.

Forestry Resources

Forestry resources are forested lands used for timber harvest. There are no forestry resources adjacent to or located in the proposed Project area.

Discussion

a, b) **Less than Significant Impact with Mitigation.** The proposed Project would occur within the existing collecting canals and existing flood infrastructure in an area that is within agricultural land. The land around the proposed Project area is primarily designated as Farmland of Statewide Importance, with some Prime Farmland and smaller areas that are under Williamson Act contracts. Proposed Project activities would not extend beyond the existing collecting canals and existing flood infrastructure and therefore would not result in the conversion of farmland to non-agricultural uses. The purpose of the proposed Project is to improve flood protection and flood conveyance of the collecting canals and flood infrastructure and decrease potential flood impacts to surrounding land. With the added protection, this proposed Project implements an objective that is supportive of and beneficial to continued agricultural use of the surrounding lands. However, the sediment removed would be placed in the center of the access roads or at the toe of the levee, where feasible. Once dry, the sediment piles would be graded into the ground surface. Because much of the adjacent land is agricultural land, depending on the timing and placement of sediments, agricultural activities could be temporarily disturbed. Long-term disruption or conversion of agricultural land would not occur because the surface would be graded and returned to pre-Project conditions. Implementation of Mitigation Measure AG-1 would ensure that DWR coordinate with adjacent private land owners, prior to depositing sediments, so that they would not impede farming activities. With this mitigation, impacts would be less than significant.

Mitigation Measure

Measure AG-1: **Coordinate with Local Land Owners.** Prior to depositing sediments on private property, DWR shall coordinate with the landowner to ensure that spoils sites are placed so that they do not interfere with agricultural activities.

c, d) **No Impact.** The proposed Project area does not include forestry resources and would not conflict with zoning or rezoning of forest land or result in the loss or conversion of forest land to non-forest uses. Therefore, no impact would occur.

e) **Less than Significant Impact.** The proposed Project is limited to maintenance within existing collecting canals and existing flood infrastructure. Although the surrounding agricultural land includes land designated as Farmland of Statewide Importance, Prime Farmland, and land under Williamson Act contract, the proposed Project would not take agricultural lands out of production or change the surrounding agricultural use. The proposed Project would include application of herbicides for vegetation removal. Improperly applied herbicides have the potential to drift onto adjacent agricultural land, with impacts to agricultural production. However, all herbicides are applied according to label specifications and applications will be made by or under the supervision of a Qualified Certified Applicator. Pesticide applications would abide by the laws, requirements, and guidelines established by the California Department of Pesticide Regulation (CDPR) and under enforcement review of the county agriculture commissioners. A licensed Pest Control Advisor (PCA) will be available to provide written recommendations for all applications and will hold himself/herself as authority. All PCA recommendations will be followed as written. Therefore, this impact would be less than significant.

3.3.3 Air Quality

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less-Than-Significant Impact*	*No Impact*
3. AIR QUALITY — Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. **Would the project:**				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☒	☐	☐

Environmental Setting

Ambient concentrations of air pollutants result from the amount of emissions released and the atmosphere's ability to transport, transform, and dilute such emissions. Existing air quality conditions in the proposed Project area are determined by topography, meteorology, and climate, in addition to the types and quantities of emissions released by existing air pollutant sources.

The Project would be located within Sutter County. The Feather River Air Quality Management District (FRAQMD) has jurisdiction over air pollution sources in Sutter County. FRAQMD prepares and implements plans to attain ambient air quality standards, develops and enforces air pollution rules and regulations, and issues permits for stationary emission sources. **Table 2** shows FRAQMD's CEQA thresholds of significance for nitrogen oxides (NOx), reactive organic gases (ROG), and particulate matter less than 10 microns in diameter (PM10).

TABLE 2.
FRAQMD EMISSION SIGNIFICANCE THRESHOLDS

Project Phase	Emission Significance Threshold (pounds per day)		
	NOx	ROG	PM10
Operational	25	25	80
Construction	25 lb/day multiplied by Project length, not to exceed 4.5 tons per year[a]	25 lb/day multiplied by Project length, not to exceed 4.5 tons per year[a]	80

NOTE:

[a] NOx and ROG construction emissions may be averaged over the life of the Project, but may not exceed 4.5 tons/year.

SOURCE: FRAQMD, 2010

The U.S. Environmental Protection Agency (EPA) has established national ambient air quality standards (NAAQS) for ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, PM10, particulate matter less than 2.5 microns in diameter (PM2.5), and lead. EPA classifies air basins (or portions thereof) as "attainment," "nonattainment," or "unclassified" for each criteria air pollutant, based on whether or not the standards had been achieved. California has adopted ambient standards that are more stringent than the federal standards for many of the criteria air pollutants. The California Air Resources Board (CARB) designates areas as "attainment," "nonattainment," or "unclassified" with respect to the California Ambient Air Quality Standards (CAAQS). Areas that meet ambient air quality standards are classified as "attainment," areas that do not meet these standards are classified as "nonattainment," and areas that have insufficient data to support any designation are considered "unclassified." Sutter County is currently designated as nonattainment for the State 1-hour ozone, State and federal 8-hour ozone, and State PM10 standards (FRAQMD 2015). Sutter County is designated as attainment or unclassified for all other State and federal standards (FRAQMD 2015).

Discussion

a) **Less than Significant Impact.** Air quality plans describe air pollution control strategies to be implemented by a city, county, or region. The primary purpose of such plans is to achieve and maintain compliance with the CAAQS and NAAQS.

FRAQMD develops and implements air quality plans to address State and federal planning requirements. These plans present comprehensive strategies to reduce emissions of ROG, NOx, and PM10 from stationary, area, and mobile sources. Such strategies include the adoption of rules and regulations, enhancement of CEQA mitigation, adoption of local air quality plans, and implementation of control measures for stationary, area, and mobile sources.

The proposed Project involves removing or displacing accumulated sediment and associated vegetation in wetted portions of 60 miles of canals. In addition, the Project would remove debris and maintain, repair, and replace culverts and bridges. The air quality impacts of the proposed Project would be maintenance activity-related emissions that are temporary and short term in nature. **Table 3** shows that the Project's emissions would not exceed FRAQMD's CEQA thresholds; therefore, the Project would not interfere with FRAQMD's plans to achieve or maintain attainment for various air pollutants. This impact would be less than significant.

b) **Less than Significant Impact.** FRAQMD's CEQA guidance states that a Project could result in significant, adverse air quality effects if temporary, short-term maintenance activity-related emissions or long-term operational emissions would exceed their thresholds of significance (see Table 2). In the case of the proposed Project, no long-term operational emissions would occur, and this analysis relates only to Project activities that would result in air emissions that would be short term or temporary in duration.

TABLE 3.
UNMITIGATED PROJECT CONSTRUCTION EMISSIONS

Category	NOx (Averaged pounds per day)[a]	ROG (Averaged pounds per day)[a]	PM10 (Maximum pounds per day)
Unmitigated			
2016	13.0[b]	1.2[b]	47.5
2017	3.0[c]	0.3[c]	8.8
Construction Significance Threshold	25 lb/day multiplied by Project length, not to exceed 4.5 tons per year[a]	25 lb/day multiplied by Project length, not to exceed 4.5 tons per year[a]	80
Exceed Construction Threshold?	No	No	No

NOTES: Unmitigated and mitigated emissions estimated using CalEEMod2013.2.2. Detailed CalEEMod results found in Appendix A.

a. The District allows NOx and ROG construction emissions to be averaged over the life of the Project, but may not exceed 4.5 tons per year. Project length in 2016 and 2017 is assumed to take 50 days, respectively. The Project length assumes phase overlap.

b. The highest construction-related emissions of NOx and ROG in the year 2016 are 0.32 and 0.03 tons per year, respectively.

c. The highest construction-related emissions of NOx and ROG in the year 2017 are 0.076 and 0.007 tons per year, respectively.

SOURCE: ESA, 2015

Short-term emissions, especially fugitive dust emissions, have the potential to cause a significant air impact. Fugitive dust results from site preparation and grading activities involving heavy equipment and varies as a function of such parameters as soil silt content, soil moisture, wind speed, and acreage of the disturbance area. ROG and NOx are primarily associated with off-road equipment and on-road vehicle exhaust. Burning of vegetation along the banks of collecting canals may be required, which would result in the temporary generation of criteria pollutant emissions. However, DWR would apply for an open burning permit prior to any vegetation burning activities as required in FRAQMD's Rule 2.0.

Equipment emissions were estimated using the California Emissions Estimator Model (CalEEMod) (Version 2013.2.2) software and are shown in Table 3. Project emissions would not exceed the FRAQMD's ROG, NOx, and PM10 significance thresholds. This impact is less than significant.

c) **Less than Significant Impact.** The proposed Project would not result in a cumulatively considerable net increase of any criteria pollutant for which the affected region is nonattainment. As noted in the discussion under a and b, emissions associated with the Project would not exceed the FRAQMD's ROG, NOx, and PM10 significance thresholds. These thresholds are designed to assist the region in attaining the applicable CAAQS and NAAQS by reducing emissions that would otherwise occur. The Project would not substantially contribute to cumulatively considerable air quality effects. When added to other similar existing and proposed future actions, the proposed Project would not contribute substantially to any cumulative air quality effects related to criteria pollutants for which the affected regions are in nonattainment. Therefore, this impact would be less than significant.

d) **Less than Significant Impact.** Sensitive receptors include residences, schools, convalescent homes, and hospitals. The Project would result in short-term maintenance-activity-related emissions of, at most, 6 months each year over a 2- and 5-year period as the maintenance activity moves along each segment of canal. The Project would not generate long-term operational air emissions. The nearest residences to sediment removal activities would be approximately 350 feet away, with additional scattered rural residences along the 60 miles of canal that would be cleared. As discussed in response to impact b, emissions associated with the proposed Project would not exceed the FRAQMD's ROG, NOx, and PM10 significance thresholds. Therefore, implementation of the Project would not expose sensitive receptors to substantial pollutant concentrations and this impact is less than significant.

e) **Less than Significant Impact with Mitigation.** The Project would excavate sediment from 60 miles of canal that would be left to dry in the center of access roads or at the toe of the levee. Drying time would vary based on the time of year. Sediment removed and piled in the summer may take 1 to 3 months to dry, while sediment removed and piled in the fall may take 8 to 10 months to dry. Sensitive receptors could be as close as 350 feet from these drying sediment piles. Sediment from the canal could contain decomposing organic matter that would over time become a source of odors at the nearest sensitive receptor. Therefore, excavated sediment from the canal could contain decomposing organic matter that may result in a temporary source of odors and would be considered a potentially significant impact. Implementation of Mitigation Measure AQ-1 would require stockpiled sediments to be placed at a far enough distance from sensitive receptors to minimize odors emitted by decomposing organic matter. With this mitigation, impacts would be less than significant.

Mitigation Measure

Measure AQ-1: Locate Sediment Piles Away from Sensitive Receptors. DWR will require that excavated sediment piles be located no closer than 1,000 feet from residential receptors.

3.3.4 Biological Resources

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less-Than-Significant Impact*	*No Impact*
4. BIOLOGICAL RESOURCES — Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☒	☐	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

Environmental Setting

Information on the biological resources present or with potential to occur in the Project area was gathered from field reconnaissance and records searches. The records searches consisted of:

- The CDFW California Natural Diversity Database (CNDDB)
- The U.S. Fish and Wildlife Service (USFWS) listed species database
- The California Native Plant Society (CNPS) Rare Plant Inventory

Reconnaissance surveys were conducted by driving access roads throughout the Project area over a 2-day period to note characteristic habitat features. Aerial photographs were used in combination with the field surveys to map habitats. Record searches were conducted for the six U.S. Geological Survey 7.5-minute quadrangles in which the Project area is located (Sutter Buttes, Sutter, Tisdale Weir, Gilsizer Slough, Sutter Causeway, and Nicolaus) and for the surrounding quadrangles.

The following discussion, based on this information, summarizes the characteristic habitats, including sensitive habitats such as wetlands and other waterways that are afforded protected status under California or federal law, as well as special-status species of wildlife and plants potentially occurring in the Project area.

Habitats

Using color aerial photography, combined with limited field ground-truthing, H. T. Harvey & Associates mapped habitat types in the Project area, which included approximately 60 miles of collecting canals and associated structures and facilities plus the area up to 200 feet beyond the boundaries of those canals and facilities. Habitat types were categorized based on those described in the California Wildlife Habitat Relationships System (CDFW 2014) and the California Native Plant Society's Vegetation Alliances and Associations of the Great Valley Ecoregion (Buck-Diaz et al. 2012). Additional habitat type descriptions were developed by H. T. Harvey & Associates biologists if needed to better characterize potential GGS habitat elements (USFWS 1999a) or to distinguish other features (e.g., levee toes and farm roads to be used during the Project implementation) that are relevant to maintenance-related activities and to the characterization of the Project's potential environmental effects. The methodology used to map habitats in the Project, a detailed description of these habitats, and maps depicting the locations of the habitats summarized below are provided in **Appendix D, Baseline Habitat Assessment**.

The 3,108-acre Project area includes a variety of habitats (**Table 4**). Agricultural crops, primarily rice but also including orchards, pasture, and field crops, are the dominant habitat (1,466.7 acres, 46.1% of the Project area). The most commonly occurring nonagricultural habitat is ruderal vegetation, which is located primarily along the banks of collecting canals and roadsides (420.6 acres, 13.2% of the area). This herbaceous plant community is characterized by mustards (e.g., *Brassica nigra, Hirschfeldia incana*), wild radish (*Raphanus* sp.), woolly mullein (*Verbascum thapsus*), milk thistle (*Silybum marianum*), Johnson grass (*Sorghum halepense*), Bermuda grass (*Cynodon dactylon*), vervain (*Verbena* sp.), and mugwort (*Artemisia douglasiana*).

Grassland is another common habitat (333.8 acres, 10.5% of the area). The dominant type is annual grassland (307.2 acres), characterized by wild oats (*Avena* spp.) and other nonnative species. It is found along levee slopes throughout the Project area. Perennial grassland, characterized by perennial grasses (e.g., *Elymus* spp.), is found in small amounts along levees (apparently seeded) and in areas managed for natural habitat.

Riparian habitat is restricted to scattered locations with limited structural diversity (71.5 acres). The native riparian forest community (30.7 acres) is characterized by trees such as Fremont cottonwood (*Populus fremontii*), black willow (*Salix gooddingii*), red willow (*S. laevigata*), black walnut (*Juglans hindsii*), and valley oak (*Quercus lobata*) in the overstory and riparian scrub species and Himalayan blackberry (*Rubus armeniacus*) in the understory. Native riparian scrub (4.2 acres) is characterized by shrubs, including wild grape (*Vitis californica*), California rose (*Rosa californica*), sandbar willow (*S. exigua*), arroyo willow (*S. lasiolepis*), poison oak (*Toxicodendron diversilobum*), Himalayan blackberry, and blue elderberry (*Sambucus nigra* ssp. *caerulea*) shrubs. Mostly pure stands of nonnative Himalayan blackberry, with occasional ruderal species and wild grape, also occur along the collecting canal banks throughout the Project area (33.2 acres). Patches of nonnative riparian community (3.4 acres) are dominated by invasive species, such as black locust (*Robinia pseudoacacia*), tree of heaven (*Ailanthus altissima*), giant reed (*Arundo donax*), eucalyptus (*Eucalyptus* spp.), and saltcedar (*Tamarix* spp.). Nonnative riparian vegetation also can be found around residences and in developed areas.

In addition, young willows have established recently in a dispersed fashion in the central portion of certain canal reaches (approximately 3 miles). The young willows establish when the level and velocity of water has been reduced, likely related to drought conditions. Such conditions can be more conducive to

establishment (shallower depth allows rooting) and persistence (absence of high flows to scour out vegetation). The trees are still very young and provide sparse cover.

TABLE 4.
HABITAT TYPES IN THE PROJECT AREA

Habitat Type	Acres	Percent Area
Aquatic		
Perennial riverine	199.7	6.3%
Seasonal riverine	11.1	0.3%
Unvegetated banks	10.2	0.3%
Lacustrine	8.0	0.3%
Wetlands		
Wet meadow	120.5	3.8%
Freshwater emergent marsh	37.3	1.2%
Valley / Foothill Riparian		
Native riparian forest	30.7	1.0%
Native riparian scrub	4.2	0.1%
Nonnative riparian	3.4	0.1%
Himalayan blackberry brambles	33.2	1.0%
Upland Habitats		
Annual grassland	307.2	9.7%
Perennial grassland	26.6	0.8%
Ruderal	420.6	13.2%
Agricultural Fields		
Rice	1,038.2	32.6%
Irrigated row and field crops	116.3	3.7%
Fallow field	61.0	1.9%
Irrigated pasture	98.3	3.1%
Deciduous orchard	152.9	4.8%
Developed		
Farm road	176.1	5.5%
Toe road	51.1	1.6%
Other developed	273.6	8.6%
TOTAL	**3,108.2**	**100%**

Wetland habitats are scattered in the Project area. Wet meadow (120.5 acres), characterized by short wetland plants such as nutsedges (*Cyperus* sp.) and rushes (*Juncus* spp.), is found in a few locations adjacent to channels and freshwater emergent marsh. Freshwater emergent marsh, characterized by tall wetland plants such as tules (*Schoenoplectus* spp.) and cattails (*Typha* spp.), is found in and adjacent to channels and lacustrine areas.

The principal aquatic habitat is perennial riverine (199.7 acres). This habitat includes collecting canals, as well as other roadside and agricultural ditches, that convey flow throughout the year. This habitat type includes floating aquatic vegetation (e.g., nonnative water primrose [*Ludwigia* spp.] and parrot-feather [*Myriophyllum aquaticum*], duckweed [*Lemna* spp.], and mosquito fern [*Azolla* spp.]), which is present in most channels throughout the Project area and ranges from sparse to moderate in cover. Seasonal riverine habitat is located in Live Oak Canal, which conveys flow seasonally and does not support emergent or

floating aquatic vegetation. Limited lacustrine habitat (still open water) is found associated with the channels.

Special-status Species

Special-status fish, wildlife, and plant species generally are defined as those species that are legally protected or otherwise considered sensitive by federal, state, or local resource conservation agencies and organizations. They include species covered under the federal Endangered Species Act (FESA) and California Endangered Species Act (CESA), other State and federal laws, and species identified in the CNPS Inventory of Rare, Threatened, and Endangered Plants of California with a California Rare Plant Rank of 1A, 1B, or 2.

Lists of special-status plant and animal species that have the potential to occur in the Project area were compiled based on data contained in the CNDDB (2015), the USFWS list of endangered and threatened species that occur in the Project area or may be affected by implementing the Project (USFWS 2015), and the CNPS Inventory of Rare, Threatened and Endangered Plants of California (CNPS 2015). A number of special-status fish, wildlife, and plant species can be found, or are known to have occurred historically, in the Project area or vicinity (see **Appendix E, Special-status Species with Potential to Occur)**. Most of the special-status species inhabiting the region are not expected to occur in the Project area because the Project area lacks suitable habitat for the species, it is outside the range of the species, or the species has been extirpated from the area.

A few special-status wildlife species are expected to occur in the Project area only as uncommon or rare visitors, migrants, or transients. They are not expected to reside or breed in the Project area or to occur in numbers high enough to be substantially affected by Project-related activities. These species are discussed in **Appendix E**, and a rationale is provided for their dismissal from further consideration (potential to occur low or unlikely). Suitable habitat exists in the Project area for several special-status wildlife species that may reside in or breed in the area or that may otherwise use the area regularly. One special-status plant species has been recorded in the Project area. The following sections discuss the habitat requirements of those species that are known to be present or have a moderate or high potential to occur in the Project area.

Special-Status Wildlife

Valley Elderberry Longhorn Beetle

The valley elderberry longhorn beetle (VELB) (*Desmocerus californicus dimorphus*) is listed as threatened under the federal ESA and is endemic to the Central Valley of California and adjacent Sierra Nevada foothill regions (Barr 1991). The species inhabits riparian and upland habitats, where its host plant, the elderberry (*Sambucus* spp.), grows.

The entire VELB life cycle depends on the elderberry shrub. After mating, the female lays her eggs in the crevices of the elderberry bark. Upon hatching (after approximately 10 days), the larvae bore into the pith of the shrub and feed inside the stems. Larvae remain in the elderberry stems for 1–2 years, until they mature. VELB emerge during spring as adults through exit holes they create as larvae. Adult beetles are active from March through June (USFWS 1984; Barr 1991). They are herbivores, feeding on elderberry foliage, flowers, and nectar until they mate and complete their life cycle. VELB are usually found at low densities in patches of elderberry shrubs (Talley et al. 2007). Populations typically occur as discrete clusters distributed along river reaches. Local aggregations of VELB are influenced by habitat patch characteristics,

such as the size of the patch, presence of large shrubs and diversity of stem sizes, and habitat connectivity (Talley 2007; Talley et al. 2007).

Potential for Occurrence in the Project Area. The potential for VELB to be present in the Project area is moderate. In general, habitat mapping documented only limited riparian scrub habitat in the Project area; however, elderberry shrubs were observed at the south end of the Project area during reconnaissance surveys.

Giant Garter Snake

GGS (*Thamnophis gigas*) is a federally listed and State-listed threatened species endemic to California's Central Valley. Relative to other garter snakes in California, GGS is the species most closely associated with aquatic ecosystems (Fitch 1940). GGS is associated with low-gradient streams, valley floor wetlands, and marshes, requiring wetlands for foraging (fish and amphibians are their prey), upland areas for basking, upland burrows as summer shelter, and higher elevation uplands for winter brumation (Hansen and Brode 1980; Hansen 1998; USFWS 1993; USFWS 1999a, 2012). In areas where wetlands have been reclaimed for agriculture, GGS are associated with rice farming and the water supply channels supporting its practice (including these collecting canals) (Hansen and Brode 1993; Hansen 1998; USFWS 1999a; Wylie et al. 1997). GGS is frequently absent from most permanent waters that support established populations of predatory game fishes; from streams and wetlands with sand, gravel, or rock substrates; and from riparian woodlands lacking suitable basking sites, prey populations, and cover vegetation (Hansen and Brode 1980, Rossman and Stewart 1987, Brode 1988, USFWS 1999a).

GGSs typically emerge from late March to early April, are active (foraging and breeding) from April through September, and seek winter refuge in October (Brode 1988; Hansen 2004; Hansen and Brode 1993; USFWS 1999a, 2012; Wylie et al. 1997). Upon emerging from overwintering sites, male giant garter snakes immediately disperse in search of mates and continue breeding from March into early May. Females brood young internally, giving birth to live young from late July through early September (Hansen and Hansen 1990). Young immediately disperse and seek shelter to absorb their yolk sacs, after which they molt and begin feeding on their own. The timing of annual activity is subject to varying seasonal weather conditions. Activity generally peaks during spring emergence and courtship from April into June, whereupon observations of GGS diminish significantly until a second peak is observed after females give birth during late July into August (Hansen and Brode 1993, Wylie et al. 1997, USFWS 1999a, Hansen 2004). GGSs then remain actively foraging and occasionally courting until the onset of cooler fall temperatures. GGSs spend cool winter months (November through mid-March) in dormancy or periods of reduced activity (brumation). They typically overwinter in small-mammal burrows and crevices near active season foraging habitat (Hansen 2004).

Although strongly associated with aquatic habitats, GGS also makes extensive use of adjacent uplands, primarily during the inactive season, but also during the snake's active period for thermoregulation, to escape from predators, and to meet other life history needs (Halstead et al. 2015). During the inactive season, suitable uplands must be located above the elevation of prevailing winter flooding and contain small-mammal burrows, soil crevices, or similar features (USFWS 2006b). During the active season, uplands must be located close to aquatic habitat (Hansen 1986; Wylie et al. 1997; USFWS 1999a; Halstead et al., 2015). The vast majority of GGS were using uplands within 100 feet of suitable wetland habitat, although distances from wetland habitat can vary substantially by season and individual (Halstead et al. 2015). Individual snakes have been noted using burrows as far as 50 m (164 ft) from marsh edges during

the active season, and retreating as far as 250 m (820 ft) from the edge of wetland habitats while overwintering, presumably to reach refugia above the annual high water mark (Hansen 1986, Wylie et al. 1997, USFWS 1999a Halstead et al. 2015). USGS found that 95% of all observed GGS were found within 10 m (33 ft) of the water's edge, although females during brumation (in winter) have a 10% probability of being found further than 20 m (66 ft) from the water's edge (Halstead et al. 2015)

Daily activity consists of emerging from burrows after sunrise, basking on banks or vegetation (tules, primrose, blackberry) to warm bodies to active temperatures, and foraging or courting for the remainder of the day (Hansen and Brode 1993). While more frequent during hot weather, using terrestrial refugia is a routine daily occurrence when molting, digesting, and overnight sheltering (E. Hansen, personal communication 2015).

GGSs feed on small fishes, tadpoles, and small frogs (USFWS 1999a), specializing in ambushing prey underwater (Brode 1988). GGSs need open-water foraging habitat, and can forage in areas with some SAV cover. Invasive yellow water primrose, *Ludwigia hexapetala*, can form dense mats of stems, roots, and trapped sediment that can clog the entire water column, substantially reducing the amount of available foraging habitat (Hansen et al. 2010). It becomes a significant problem if the invasive primrose canopy and biomass completely occlude the water column and/or create water quality conditions that no longer support prey species (Hansen et al. 2010). Trapping and radio telemetry surveys at Snake Marsh (Cosumnes River Preserve, Sacramento County) over the past decade indicate a shift in the spatial distribution of GGSs that appears to correlate with changing habitat conditions (Hansen 2003, Hansen et al. 2010). Radio-marked snakes tracked between 2002 and 2003 altered their primary foraging areas in a pattern consistent with the concurrent expansion of invasive yellow water primrose, with all radio-marked snakes moving from formerly occupied habitat to areas where residual open-water foraging habitat still remained in advance of water surface occlusion by yellow water primrose (Hansen 2003). A pilot restoration project at Snake Marsh found a significant increase in the number of GGSs colonizing restored open-water areas where primrose and up to 6 feet of underlying sediment and plant biomass were mechanically removed (Hansen et al. 2010).

Predators of GGS include large vertebrates such as raccoons (*Procyon lotor*), striped skunks (*Mephitis mephitis*), red foxes (*Vulpes vulpes*), gray foxes (*Urocyon cinereoargentius*), river otters (*Lutra canadensis*), opossums (*Didelphis virginiana*), Northern harriers (*Circus cyaneus*), hawks (*Buteo* spp.), herons (*Ardea herodius, Nycticorax nyctycorax*), egrets (*Ardea alba, Egretta thula*), and American bitterns (*Botaurus lentiginosus*) (USFWS 1999a). In permanent waterways, introduced predatory game fishes, such as bass (*Micropterus* spp.), sunfish (*Lepomis* spp.), and channel catfish (*Ictalurus* spp.), may prey on GGSs and compete with them for smaller prey (Hansen 1998, USFWS 1993).

Potential for Occurrence in the Project Area. GGS has been documented in the Project area. Most of the Project area provides likely habitat for GGS. Habitat suitability for GGS was assessed using the habitat maps prepared for the Project area; the field reconnaissance of the Project area; review of recorded sightings of GGS in the region (CNDDB 2015); and conversations with Eric Hansen, an expert on this species (2015). The landscape is dominated by rice fields, which offer open water and emergent herbaceous vegetation during the snake's active season. The rice fields are interspersed with mud- or silt-bottomed, perennially wet canals that support floating aquatic or emergent herbaceous vegetation in the channel, and herbaceous vegetation on the banks. Farm and toe roads adjacent to the canals and rice fields provide upland habitat in the Project area, although, because of the lack of vegetation and compacted nature of the

roads, they only rarely provide limited opportunities for GGS to occur underground in occasional soil cracks or ground squirrel holes. In addition, GGS is well documented within wetlands, drainages, and areas of rice agriculture of the surrounding Sutter Basin (CNDDB 2015), increasing the probability that GGS would be found in suitable habitats in the Project area.

One segment of the Project area likely does not represent GGS habitat: Live Oak Canal between Lincoln Road and Pease Road. North of Lincoln Road, the channel and banks of Live Oak Canal are mostly devoid of vegetation, and the canal is surrounded by orchards and residences. It also appears to contain water less consistently than the canals interspersed among the rice fields in most of the Project area.

Western Pond Turtle

The western pond turtle (*Actinemys marmorata*) is a California species of special concern and is being considered for listing as threatened or endangered under the FESA. The species occurs in a wide range of both permanent and intermittent aquatic environments (Bury and Germano 2008). The central California population was historically present in most drainages on the Pacific slope (Jennings and Hayes 1994), but stream flow alterations and other sources of habitat destruction, exacerbated by frequent drought events, have caused substantial population declines throughout most of the species' range (Stebbins 2003, Bury and Germano 2008).

Ponds, slack-water pools, and slow streams with suitable basking sites (such as logs, rocks, mats of floating vegetation, or open mud banks) are important habitat components for this species (Bury and Germano 2008). Western pond turtles do not occur commonly along high-gradient streams (Jennings and Hayes 1994). In their aquatic habitat, they are associated with areas that contain underwater refugia, such as rocks or submerged vegetation (Hays et al. 1999). Western pond turtles frequently move between aquatic and upland habitats in spring and summer (Rathbun et al. 2002). They deposit eggs in upland areas up to 1,300 feet from adjacent watercourses (Jennings and Hayes 1994). Western pond turtles typically become active in March and return to overwintering sites by October or November (Jennings and Hayes 1994).

Potential for Occurrence in the Project Area. The potential for western pond turtle to be present in waterways in the Project area is moderate because the canals in the Project area provide aquatic habitat and the banks provide potential basking sites for the species. There are scattered records of the species nearby the Project area (CNDDB 2015)

Burrowing Owl

Burrowing owl (*Athene cunicularia*) is a California species of special concern and is protected under the Migratory Bird Treaty Act (MBTA). It is primarily a grassland species, but it persists and even thrives in some landscapes highly altered by human activity (Gervais et al. 2008). Burrowing owls use small-mammal burrows with entrances at least 4 inches in diameter and occasionally use concrete debris for nesting dens and shelter. Their nesting period is from February 1 through August 31. The overriding characteristics of suitable habitat appear to be burrows for roosting and nesting and relatively short vegetation with only sparse shrubs and taller vegetation, which allow owls to see predators from longer distances. Burrowing owls can be found in barren areas, along levee berms, and in developed areas such as golf courses, airports, cemeteries, and vacant lots. Burrowing owls in agricultural environments nest along roadsides and water conveyance structures (open canals, ditches, drains) that are surrounded by crops (Gervais et al. 2008). Their diets are diverse, and they can feed on insects and other small animals, including mammals, birds, reptiles, and amphibians.

Potential for Occurrence in the Project Area. The potential for burrowing owl to be present in the Project area is moderate to high. Within the Project area there are no CNDDB occurrences; however, habitats exist in the Project area that burrowing owls may occupy including open grasslands, ruderal areas, agricultural fields, and levees where vegetation is low or sparse. The Project area contains numerous small-mammal burrows, particularly California ground squirrel (*Otospermophilus beecheyi*) burrows, which burrowing owls frequently use for nesting dens. Concrete debris piles, pipes, and culverts also may be used as habitat.

Greater Sandhill Crane

The greater sandhill crane (*Grus canadensis tabida*) is State-listed as threatened and is protected under the MBTA. This migratory bird winters in the Central Valley from mid-September through early March. Wintering cranes require habitat for roosting, foraging, and loafing. Suitable roosts and a nearby abundance of cereal grain crops are requisites for wintering cranes (Schlorff 2005). Rice is the most important food crop for wintering cranes in the northern Central Valley, and corn is used on the remainder of the wintering ground, particularly in the Sacramento–San Joaquin Delta. Irrigated pastures also are used as loafing and feeding sites in some areas (Pogson and Lindstedt 1988). Managed wetlands and shallowly flooded agricultural lands support roosting.

Potential for Occurrence in the Project Area. The potential for greater sandhill crane to be present in the Project area is low to moderate during the wintering season (September through March). The landscape surrounding the Project area is dominated by rice, which is a preferred type of foraging habitat. The Project area includes other agricultural lands that can be used by sandhill cranes for foraging and loafing, including irrigated pasture, irrigated row and field crops, and grasslands.

Loggerhead Shrike

The loggerhead shrike (*Lanius ludovicianus*) is considered a California species of special concern (breeding) and is protected under the MBTA. This species is distributed throughout much of California, except in higher-elevation and heavily forested areas, including the Coast Ranges, the Sierra Nevada, the southern Cascade Range, the Klamath and Siskiyou Ranges, and the highest parts of the Transverse Ranges (Humple 2008). Loggerhead shrikes establish breeding territories in open habitats with relatively short vegetation that allows for prey to be visible. They can be found in grasslands; scrub habitats; riparian areas; other open woodlands; ruderal habitats; and developed areas, including golf courses and agricultural fields (Yosef 1996 reviewed by Humple 2008). Ideal breeding habitat for loggerhead shrikes comprises short grass habitat with many perches, shrubs, or trees for nesting, and sharp branches or barbed wire fences necessary for impaling prey. Shrikes nest earlier than most other passerines, especially in the West, where populations are sedentary. The breeding season may begin as early as late February and lasts through July.

Potential for Occurrence in the Project Area. The potential for loggerhead shrike to be present in the Project area is moderate to high. Stands of Himalayan blackberry and other short-stature shrubs could provide suitable nesting substrate. The adjacent orchards do not offer suitable foraging habitat; however, the fallow fields and agricultural crops provide foraging habitat for loggerhead shrikes.

Northern Harrier

The northern harrier (*Circus cyaneus*) is a California species of special concern and is protected under the MBTA. It breeds and forages in a variety of open (treeless) habitats that provide adequate vegetative cover, an abundance of suitable prey (rodents and passerine birds), and scattered hunting, plucking, and lookout

perches, such as shrubs and fence posts (Davis and Niemela 2008). In California, such habitats include freshwater marshes; brackish and saltwater marshes; wet meadows; weedy borders of lakes, rivers, and streams; annual and perennial grasslands (including those with vernal pools); weed fields; ungrazed or lightly grazed pastures; some croplands (especially alfalfa, grain, sugar beets, tomatoes, and melons); sagebrush flats; and desert sinks.

Breeding habitat includes freshwater wetlands, coastal brackish wetlands, open wet meadows and grasslands, shrub-steppe, desert sinks, areas along rivers and lakes, and crop fields. Harriers nest on the ground, mostly in patches of dense, often tall, vegetation in undisturbed areas. Disturbance from humans, agricultural operations (plowing, mowing, livestock trampling), and excessive predation can cause nest failure (Davis and Niemela 2008).

Potential for Occurrence in the Project Area. The potential for northern harrier to be present in the Project area is high. Foraging habitat is available on pasture, grassland, and some croplands that surround the collecting canals. Suitable nesting habitat with dense herbaceous vegetation may be limited.

Swainson's Hawk

The Swainson's hawk (*Buteo swainsoni*) is a migratory raptor that was listed by the State as a threatened species under CESA in 1983 and is protected under the MBTA. An estimated 95% of the State's Swainson's hawk population is located in the Central Valley (Anderson et al. 2007). The hawks arrive on breeding grounds in the Central Valley between early March and mid-April and typically leave them to head south for the winter between mid-August and mid-October (Woodbridge 1998).

Swainson's hawks typically nest in mature, dense-canopied cottonwoods, willows, and valley oaks associated with riparian forest habitat and in isolated trees next to agricultural and grassland habitat (Estep 1989; Woodbridge 1998). Although the Swainson's hawk is not an obligate riparian species (its relationship with riparian habitats is variable), riparian woodlands are a key nesting habitat for the species in the Central Valley. Swainson's hawks forage in grasslands and agricultural lands, including alfalfa fields, disked fields, fallow fields, dryland pasture, beet crops, tomato crops, irrigated pasture, grain crops, other row crops, and other agricultural crops (Estep 1989). Orchards and vineyards generally have low value as Swainson's hawk foraging habitat because the height and density of the vegetation interfere with the hawks' ability to hunt and because the bare ground between the trees in orchards generally supports low rodent populations (Estep 2009).

Potential for Occurrence in the Project Area. The potential for Swainson's hawk to be present in the Project area is moderate to high. The mosaic of irrigated pasture, low-growing row crops, and grassland adjacent to the Project area provides suitable foraging habitat for the species; however, rice and orchards have limited value as foraging habitat. The extent of suitable nesting habitat in the Project area is minimal because the number of tall trees and the amount of riparian forest and woodland along the channels is limited. Swainson's hawk could nest in the denser riparian habitat available west of the Project Area (e.g., in the Sutter Bypass or lower Wadsworth Canal) and in the Project area.

Tricolored Blackbird

The tricolored blackbird (*Agelaius tricolor*) was designated as a candidate under CESA on December 10, 2015, and is protected under the MBTA. The impetus for the CESA designation was, in part, evidence of steep declines in tricolored blackbird populations based on statewide surveys, which documented a 62%

decline in a population, from 395,000 in 2008 to 145,000 in 2014 (Meese 2014). Tricolored blackbirds are found primarily in the Central Valley and in central and southern coastal areas of California. The species is highly colonial in its nesting habits and forms dense breeding colonies that, in some parts of the Central Valley, may consist of up to tens of thousands of pairs. This species nests in a variety of substrates, including flooded emergent wetlands. Historically, most colonies were established in freshwater marshes dominated by cattails (*Typha* sp.) and bulrushes (*Schoenoplectus* sp.). In the absence of these habitats, tricolored blackbirds will nest in Himalayan blackberry, mustards (*Brassica* spp.), thistles (*Circium* spp.), mallows (*Malva* spp.), safflower (*Carthamus tinctorius*), tamarisk (*Tamarix* spp.), elderberry/western poison oak (*Sambucus* spp. and *Toxicodendron diversilobum*), giant reed, and riparian scrublands and forests (Beedy and Hamilton 1999). Large flocks have been documented nesting in grain fields in the Central Valley (Meese 2014). Tricolored blackbirds form large, often multispecies flocks during the nonbreeding period and range more widely than during the breeding season.

Potential for Occurrence in the Project Area. The potential for tricolored blackbird to be present in the Project area is high. Suitable foraging habitat is provided by irrigated pastures and fallow fields adjacent to the Project area, but rice is not preferred for foraging. Potentially suitable nesting habitat is provided by dense stands of Himalayan blackberries along canals on Poodle Creek, Wadsworth Canal, and East Borrow Ditch. Some suitable nesting habitat also exists in emergent and riparian channel vegetation in the Project area. Foraging tricolored blackbirds were observed at the north end of the Project area at the Sutter Basin Drainage in June 2016 and were assumed to be from a colony nesting just north of Hwy 20 (Tricolored Blackbird Portal 2016). There is one CNDDB occurrence within a 5-mile radius from the 1940s, and this locality was presumed extirpated by 1991.

Western Yellow-Billed Cuckoo and Proposed Critical Habitat

The western yellow-billed cuckoo (*Coccyzus americanus occidentalis*), a State-listed endangered subspecies of the yellow-billed cuckoo, has been recognized through designation of a distinct population segment (USFWS 2001) and is protected under the MBTA. In 2014, the cuckoo was also federally listed as threatened under the FESA, and critical habitat was proposed throughout its range, including a 69-mile-long contiguous segment of the Sacramento River from Red Bluff to Colusa, and in the northern portion of the Sutter Bypass (USFWS 2014). This subspecies was once common throughout California, but the population has declined over the last 100 years following extensive loss of riparian habitat. The Upper Sacramento River used to have one of the largest cuckoo populations in California; however, surveys have documented a dramatic decline in this population (Dettling et al. 2014, 2015).

Nesting occurs between June and August, with the peak occurring from mid-July through early August. Cuckoos breed in large blocks of riparian habitat, particularly riparian woodlands with cottonwoods and willows (USFWS 2001). Foraging typically occurs in riparian vegetation, adjacent streams, and, to a lesser extent, orchards adjacent to breeding areas.

Potential for Occurrence in the Project Area. There is a low potential for western yellow-billed cuckoo to be present in the Project area based on habitat suitability and overall population numbers along the Sacramento River from Red Bluff to Colusa. Most of the Project area does not offer the dense riparian understory of willow-cottonwood riparian forest necessary for nesting. Overall population numbers are low even in nearby more suitable habitat. The number of cuckoos detected on the Sacramento River has been extremely low in recent years (8 detection occasions in 2012 and 10 occasions in 2013) (Dettling et al. 2014). The 2013 surveys suggest that no more than 28 pairs are present along the Sacramento River, and up

to 97% of potential habitat is unoccupied (Dettling et al. 2015). The current limiting factor for the yellow-billed cuckoo in the Sacramento Valley is likely not the amount of appropriate vegetation, as there has been a net gain over the last 30 years (Dettling et al. 2015).

The boundary of the proposed critical habitat for western yellow-billed cuckoo lies within the Sutter Bypass between Wadsworth Canal and the Tisdale Bypass, in the Sutter National Wildlife Refuge. This boundary is adjacent to, but outside, the western edge of the Project area. Proposed critical habitat comprises such elements as large, contiguous patches (greater than 200 acres in extent and greater than 325 feet in width) of willow-cottonwood riparian woodland with dense canopy and understory structure; an adequate prey base, including large insect fauna and tree frogs; and a dynamic riverine system that encourages sediment movement and sustained regeneration of mixed-age riparian habitat. Because cuckoos tend to nest in large extents of habitat with a closed canopy and high humidity, there is low potential for western yellow-billed cuckoos to nest at the edge of this larger block of contiguous suitable mixed riparian forest that is proposed as critical habitat. This habitat may be suitable foraging habitat. However, the Project area itself is outside the proposed boundary, and the patchy riparian vegetation within the Project area does not satisfy the elements for critical habitat.

California Black Rail

The black rail (*Laterallus jamaicensis coturniculus*) is State listed as threatened and is a California fully protected species and is protected under the MBTA. They are found in freshwater and saline emergent wetlands in the San Francisco Bay Area, the Sacramento–San Joaquin Delta, and coastal southern California. Black rails are also found nesting in shallow, perennial wetlands in the Sierra Nevada foothills northeast of the Project Area, most of which are created by irrigation seepage (Richmond et al. 2008). Black rails occur most frequently in wetlands and marshes associated primarily with pickleweed, but also with vegetation including bulrushes, cattails, and saltgrass. They place nests in dense vegetation, mostly pickleweed. The species frequents the upper tidal zones of wetlands and shallow waters. Their population has declined with the vast reduction in wetland habitats (CDFG 1999).

Potential for Occurrence in the Project Area. The potential for black rail to be present in the Project area is low to moderate. The nearest CNDDB record of black rail to the project site is from 2006, located at Gilsizer Slough, near the Sutter Bypass (CNDDB 2016). Wetland areas with shallow waters adjacent to and within the Project area may provide suitable breeding habitat for the species.

White-Tailed Kite

The white-tailed kite (*Elanus leucurus*) is a federal species of concern and is a fully protected species in California. It is a year-round resident of the valley lowlands and coastal California (Polite 1990). White-tailed kites can be found in association with the herbaceous and open stages of a variety of habitat types, including ruderal habitats, open grasslands, meadows, emergent wetlands, and agricultural lands. They build stick nests near the top of a dense willow, oak, or other tree stand located adjacent to foraging areas. Breeding occurs between February and October, during which time nesting birds are seldom observed more than 0.5 mile from an active nest (Polite 1990). White-tailed kites breed in lowland grasslands, agricultural areas, wetlands, oak-woodland and savanna habitats, and riparian areas associated with open areas.

Potential for Occurrence in the Project Area. The potential for white-tailed kite to be present in the Project area is high. The scattered trees along the collecting canals provide limited but suitable nesting substrate adjacent to suitable foraging habitat. The adjacent orchards have limited value as foraging habitat

for white-tailed kite; however, the mosaic of fallow fields and agricultural crops adjacent to the channels are suitable foraging sites.

Special-Status Plants

Woolly Rose-Mallow

The woolly rose-mallow (*Hibiscus lasiocarpus* var. *occidentalis*) has a California Rare Plant Rank of 1B.2 (rare, threatened, or endangered in California and elsewhere; moderately threatened in California). It is a perennial rhizomatous herb that can occur in riprap on sides of levees near the waterline, as well as along the margins of freshwater marshes and swamps. The plant is a dicot and has toothed triangular leaves with woody stems. It generally produces several large white flowers on each plant; each flower has a crimson center.

Potential for Occurrence in the Project Area. The potential for woolly rose-mallow to be present in the Project area is high. This plant may occur in riprap. It also can occur in seasonal drainages in the Project area. Several occurrences were recorded in the CNDDB in the Project area (CNDDB 2015).

Sanford's Arrowhead

The Sanford's arrowhead (*Sagittaria sanfordii*) has a California Rare Plant Rank of 1B.2. It is a perennial rhizomatous herb and is found in freshwater marshes and swamps and seasonal drainages. The plant is a monocot and has a raceme of small white flowers with narrow leaf blades that are strap shaped or lanceolate. It grows from a spherical tuber.

Potential for Occurrence in the Project Area. The potential for Sanford's arrowhead to be present in the Project area is moderate. Seasonal drainages in the Project area are suitable habitat for this plant.

Wetlands and Other Waters of the United States

Jurisdictional waters, or water features that may be regulated under federal or State authority, are present throughout the Project area. The Project area flood control channels and sloughs are riverine features that convey water from the upper reaches of the watershed. Areas of freshwater emergent wetland, willow riparian scrub, and seasonal wetland are located along the banks of channels and likely qualify as Waters of the United States regulated under the Clean Water Act (CWA). Sediment removal, structure maintenance, and channel vegetation removal are maintenance activities that would result in the dredging or fill of wetlands and waters of the United States. Coverage under Sections 404 and 401 of the CWA therefore is likely to be necessary to conduct Project maintenance activities in channels for activities that would result in dredging or fill.

These areas may additionally be Waters of the State subject to Regional Water Quality Control Board regulation under the California CWA and by CDFW under Fish and Game Code Section 1600 et seq. Activities that would result in the diversion or obstruction of the natural flow of a stream; substantially change a stream's bed, channel, or bank; or use any materials (including vegetation) from the streambed require a streambed alteration agreement with CDFW under Section 1602 of the California Fish and Game Code.

Habitat types that may include waters of the United States, wetlands, or riparian habitat subject to federal or State regulation are collectively referred to as potentially jurisdictional habitat. Habitats indicated as

potentially jurisdictional habitat consist of those that: fall within the OHWM of canals in the Project area; are located along channel banks; support vegetation typical of wetlands or riparian habitat; or exhibit hydrology typical of wetlands (e.g., ponded water). These characteristics were observed during field reconnaissance and through interpretation of aerial photographs (**Table 5**). However, habitat maps were not prepared at a level of detail sufficient to formally identify potentially jurisdictional habitats under the applicable laws and regulations, nor are the maps supported by field data sufficient to allow this identification. At present, a comprehensive wetland delineation covering the entire Project area has not been conducted.

TABLE 5.
CROSSWALK OF HABITAT TYPES AND POTENTIALLY JURISDICTIONAL HABITAT IN THE PROJECT AREA

Habitat Type	Basis for Potentially Jurisdictional	Acres
Potentially Jurisdictional Aquatic Habitat		
Perennial riverine	Located below OHWM	199.7
Seasonal riverine	Located below OHWM	11.1
Unvegetated banks	Located below OHWM	10.2
Lacustrine	Located below OHWM; dominant vegetation when present typical of wetlands	8.0
Potentially Jurisdictional Wetlands		
Wet meadow	Dominant vegetation and hydrology	120.5
Freshwater emergent marsh	Dominant vegetation, may be below OHWM	37.3
Potentially Jurisdictional Riparian Habitat*		
Ruderal	Some, if located along banks of waterways (based on location, not necessarily hydrophytic plants)	420.6
Native riparian forest	Dominant vegetation; mostly located along banks of waterways potentially subject to CDFW jurisdiction	30.7
Native riparian scrub	Dominant vegetation; mostly located along banks of waterways potentially subject to CDFW jurisdiction	4.2
Nonnative riparian	Some, if located along banks of waterways (based on location, not necessarily hydrophytic plants)	3.4
Himalayan blackberry brambles	Located along banks of waterways potentially subject to CDFW jurisdiction	33.2
Potentially Jurisdictional Farmed Wetlands		
Rice	Dominant vegetation and hydrology (potential farmed wetland)	1,038.2
Irrigated pasture	Dominant vegetation and sometimes hydrology (potential farmed wetland)	98.3

NOTES:

Based on habitat types (Table 4) mapped for approximately 60 miles of collecting canals and associated structures and facilities plus the area up to 200 feet beyond the boundaries of those canals and facilities.

* some riparian habitat areas also may qualify as jurisdictional wetlands.

CDFW = California Department of Fish and Wildlife; OHWM = ordinary high-water mark.

Discussion

Maintenance activities conducted in the Project area, particularly those that involve ground disturbance or vegetation removal, have the potential to affect special-status species and their habitat. The following sections discuss, by species or species group, the potentially significant impacts and the mitigation measures that would be implemented to reduce the level of the impacts.

a) **Less than Significant Impact with Mitigation.**

Valley Elderberry Longhorn Beetle

Mature elderberry shrubs, the host plant of VELB, were observed toward the south end of the Project area. The precise number of shrubs that would be affected by implementing the Project is unknown at this time. The potential Project-related direct impact on VELB involves removal of elderberry shrubs for equipment access to the collecting canals. Given the sparseness of vegetation along the collecting canals, it would be possible to flag and work around most of the elderberry shrubs. The indirect impacts on VELB would be ground disturbance, noise, and dust accumulation on elderberry foliage.

Elderberry shrubs would be avoided during vegetation chemical treatment since all spraying would be conducted in the aquatic environment where elderberry shrubs do not occur. Chemical treatments would be conducted according to herbicide label specifications. Because of these cautionary methods, no additional avoidance or mitigation measures are needed during vegetation chemical treatments.

Project impacts on VELB habitat would need to be quantified by DWR in accordance with USFWS's VELB conservation guidelines (USFWS 1999b). Projects affecting VELB habitat (i.e., elderberry shrubs) are required to mitigate impacts based on guidance criteria such as the number of stems greater than 1 inch in diameter at ground level that would be affected by Project-related activities, the presence or absence of VELB exit holes in affected stems, and the supporting habitat (riparian or nonriparian) (USFWS 1999b).

In those situations where it would not be possible to avoid elderberry shrubs, the following mitigation measures would be implemented to reduce the potentially significant impact on VELB.

Mitigation Measures

Measure BIO-1: Flag or Fence Elderberry Shrubs. Project activities will not occur within 5 feet of the shrub's dripline, except as noted in BIO-3. If work occurs between100 and 5 feet from an elderberry shrub's dripline at a time when the shrubs are not easily identifiable (do not have visible berries and flowers, around November to March), a qualified biologist will flag the shrub before the start of Project-related activities. When shrubs have visible berries and flowers (around April to October), neither flagging nor fencing will be required (except as noted below in BIO-3), as DWR maintenance staff will be trained on how to identify elderberry shrubs by flowers and berries. For any Project-related activities within 20 feet of the shrub, Yard staff will notify a qualified biologist to determine if the activity would require installing buffer fencing 5 feet from the shrub's dripline to increase visibility and avoidance.

Measure BIO-2: Worker Environmental Awareness Training. DWR will provide annual environmental awareness training by a qualified biologist to all maintenance staff involved in Project activities. The training will include descriptions of all species of special-status wildlife potentially

occurring in the Project area, including their habitats, methods of identification, the importance of their conservation, and the means to protect them during Project-related activities. Visual aids for identification will be handed out as appropriate.

Measure BIO-3: Remove Vegetation by Hand. Vegetation within 5 feet of the dripline of any elderberry shrub will be removed by hand if required to provide access to the canals. Heavy equipment will be used only at a distance of more than 5 feet from the dripline of elderberry shrubs that will not otherwise be disturbed. A biological monitor will be on site during any work within 5 feet of the elderberry shrub.

Implementing these mitigation measures and conservation guidelines would reduce the potentially significant impact on VELB to a less-than-significant level because Project-related activities would largely avoid adverse effects on its habitat (elderberry shrubs).

Giant Garter Snake

Most of the collecting canals and surrounding area provide suitable habitat for GGS. The proposed maintenance activities would have a high potential to affect GGS because, during the spring (starting in March) and summer, the species uses the aquatic habitat in collecting canals as foraging habitat and as a movement corridor. GGS also use refugia (small mammal burrows, crayfish burrows, and soil cracks and crevices) along the canals and in adjacent uplands. During late fall and winter, GGS spend much of their time in upland refugia.

Potential Beneficial Impacts

The Project is likely to create incidental benefits for the species. The collecting canals sometimes accumulate substantial amounts of sediment. This sediment reduces water depth, aquatic habitat area and volume, and eventually will cause flooding. DWR periodically removes the sediment and thereby increases flow velocity, aquatic habitat volume and surface area. The 2012 5-Year Review (USFWS 2012, p. 15) cites a BLM pilot project (Hansen et al. 2010) where mechanical removal and chemical treatment of invasive non-native water primrose restored open water areas to the marsh, leading to increased use of the habitat by the giant garter snake. Furthermore, DWR would retain and protect existing habitat along canal margins (e.g., emergent marsh along canal edges) and canal banks, while removing accumulated submerged and floating aquatic vegetation (often dominated by invasive species). Avoiding the canal edges and vegetation along the canal edges is particularly important for the snake, because the edges of canals are used by snakes for movement, foraging, and cover. The Project would also improve water flow in canal and water delivery to areas designated as GGS habitat or mitigation banks (e.g., along Sutter Bypass, Sutter Basin Conservation Bank).

Over time, drainage channels and canals get clogged with floating and submerged aquatic vegetation consisting mainly of nonnative invasive species such as water hyacinth, water primrose, Brazilian waterweed, parrot’s feather, and coontail. This floating and submerged aquatic vegetation reduces flow velocities, light penetration in the water column, and dissolved oxygen levels. Dense nonnative floating and submerged vegetation that fully clogs the channel is therefore detrimental to native aquatics species such as GGS, and their prey species. DWR periodically removes these floating and submerged plants to maintain conveyance capacity, and thereby increases water velocity, light penetration and dissolved oxygen. Improving aquatic habitat quality can have a beneficial effect on GGS.

With ongoing maintenance, these canals would continue to provide water to snake habitat and help reduce the risk of both localized and large-scale landscape flooding of giant garter snake habitat by keeping flows in the canals and out of the surrounding upland areas where snakes are likely overwintering.

Potential Adverse Impacts

Direct and indirect impacts on GGS could occur during most of the identified Project maintenance activities: sediment removal, bridge repair, and culvert repair. Direct impacts on GGS resulting from Project-related activities could include: injury or mortality related to contact with the excavator bucket as it scoops sediment from the canal; excavation of snakes in burrows along banks for bridge and culvert repair; entombment of snakes in burrows under spoil piles; and disturbance of snakes when dry spoil is spread out on the roads. Other direct impacts could include GGS being crushed underneath moving equipment or vehicles while basking on the road or hiding in refugia. Indirect adverse impacts on GGS could occur if potentially suitable refuge habitat (e.g., holes in noncompacted roadways or in adjacent uplands near the canal) is removed from the Project area. Temporary indirect impacts, such as disruption of feeding and sheltering behavior, could also occur as a result of general disturbance, including exposure to noise, vibration, and dust.

DWR would remove sediment from collecting canals in the Project area and place it near the canals (within 30-40 feet), typically on farm roads that are usually compacted and therefore devoid of refugia. Typical spoils piles would be about 20 feet wide. The spoils would be piled and allowed to dry for several months before they are spread out on the roads. Although spoils piles would likely be devoid of vegetation and thus not attractive to snakes, if cracks or crevices form in the dried spoil piles, and if snakes occupy these as refugia, there would be a potential to entomb or crush the snakes when spoils are spread.

The water level in the canals is typically highest during the GGS active season (May through October). There is no option for dewatering these canals because the water is expected to flow at all times to supply landowners who have water rights downstream. In addition, farmers are busy at this time and make regular use of farm roads. Peak flows and activity occur in September, when rice fields are drained and harvested. This combination of high water, which limits visibility in the wetted canal, and regular use of the roads makes removing sediment difficult. Fall and winter would be better times for DWR to remove sediment because the water is at its lowest from October through February and road use by farmers is considerably reduced.

Conducting sediment removal during the inactive season would reduce the potential for impacts in the aquatic habitat because GGSs are more likely to be occupying upland burrows. If any snakes are present in aquatic habitat, take could be better avoided by workers during winter when the canal bottom is more visible (because the canals would contain less water and less aquatic and emergent vegetation would be growing in the canals) and GGS will have left the aquatic environment. Active season spoil placement would occur on about 20 miles of canals where DWR has easements, resulting in spoil placement on about 48 acres of uplands[1]. For the 40 miles of the total 60 miles of canals that are located on private lands, DWR would need to work with landowners to coordinate

[1] Spoil placement on 48 acres of uplands where DWR has easements was calculated based on the 20 miles of canals with an average of 20 foot wide spoils piles.

access during the summer, or conduct sediment removal during the inactive season. Inactive season work could result in spoil placement on up to 97 acres of uplands. However, placing spoils on upland areas within 30 to 40 feet of the canals during the inactive season may have a greater potential to entomb snakes than if placed during the active season. Because brumating snakes likely cannot move away from spoils being placed on the uplands, DWR will make every attempt to do active season work.

Bridge and culvert repair and replacement activities would be conducted between May 1 and October 1, during the active season, when snakes are less likely to be in burrows that could be excavated.

The following mitigation measures would be implemented to address this potentially significant impact on GGS.

Mitigation Measures

***Implement* Measure BIO-2: Worker Environmental Awareness Training**

Measure BIO-4: Minimize Vegetation Clearing and Ground Disturbance. Vegetation clearing and ground disturbance will be confined to the minimum area necessary to facilitate maintenance activities.

Measure BIO-5: Stage Vehicles and Equipment in Designated Staging Areas. Maintenance activities and staging of materials, portable equipment, vehicles, and supplies will be on disturbed areas where feasible. DWR maintenance staff members will ensure that appropriate best management practices (e.g., spill prevention and containment) are implemented in these areas to avoid contamination of GGS habitat.

Measure BIO-6: Inspect Areas under Vehicles and Heavy Equipment. DWR maintenance staff members will inspect under and around all vehicles and heavy equipment for the presence of GGS before the start of each workday.

Measure BIO-7: Restrict Vehicle and Heavy Equipment Traffic. Movement of vehicles and heavy equipment to and from maintenance areas will be restricted to existing roadways where feasible. Vehicle speeds will be limited to 20 miles per hour to minimize the potential for harming GGS that are basking on access roads.

Measure BIO-8: Cover Excavated Areas at Night and Provide Escape Ramps. All excavated, steep-walled holes or trenches will be covered with appropriate covers (thick metal sheets or plywood) at the end of each workday. Covers will be placed to ensure that trench edges are fully sealed. Alternatively, such trenches may be furnished with one or more escape ramps constructed of earth fill or wooden planks to provide escape ramps for wildlife.

Measure BIO-9: Avoid and Protect GGS Found at Maintenance Site. If a GGS is observed in an active maintenance area, DWR maintenance staff members will stop work within 200 ft of the snake and allow the snake to leave on its own. Alternatively, individuals who can handle and relocate GGS—i.e., individuals who possess appropriate federal and California permits for these activities—may capture and relocate the snake. USFWS and CDFW will be notified by telephone or email within 24 hours of a potential GGS observation in active maintenance areas. If the GGS does not voluntarily leave the maintenance area and cannot be effectively captured and relocated unharmed (e.g., if the snake retreats into an underground burrow or below the water surface), maintenance activities that may impact the snake in the immediate vicinity of the GGS will stop as needed to prevent harm to the snake and USFWS and CDFW will be consulted.

For vegetation chemical treatments, no effort will be made to identify aquatic snakes to species level. Spray crews will be aware and alert of the potential to encounter aquatic snakes and will avoid all aquatic snakes by stopping the spraying and steering the vehicle away from the snake's location, only restarting the spraying after moving away from the area where the snake was spotted.

Measure BIO-10: Avoid Using Materials that may Entangle GGS. Products with plastic monofilament or cross-joints in the netting that are bound/stitched (such as straw wattles, fiber rolls, or erosion control blankets), which could trap GGS or other wildlife, will not be used.

Measure BIO-11: Remove Refuse. To eliminate sources that could attract wildlife, which may include GGS predators, all trash, including food-related trash items, such as wrappers, cans, bottles, and food scraps, will be disposed of in closed containers and removed from maintenance areas at the end of each workday.

Measure BIO-12: Timing of Work (GGS Inactive Season) Occuring in the Aquatic Environment (No Ground Disturbance or Potential for Filling of Upland Cracks and Crevices). When possible, conduct work when snakes are not active (opposite of active season criteria below in BIO-13, active season work). During this time, the potential for take of GGS in aquatic habitat is reduced because GGS are more likely to be occupying upland burrows.

Measure BIO-13: Timing of Work (GGS Active Season) that Involves Ground Disturbance or Filling of Upland Cracks and Crevices. When possible, work in potential GGS habitat will occur between May 1 and October 1. Work in GGS upland habitat may also occur between October 2 and November 1 or April 1 through April 30 provided ambient air temperatures exceed approximately 75ºF during work and maximum daily air temperatures have exceeded approximately 75ºF for at least 3 consecutive days immediately preceding work. During these periods, GGS are more likely to be active in aquatic habitats and less likely to be found in upland habitats. At least twenty-six miles out of 60 miles of canals and all bridge repair work can be conducted during the active season.

Measure BIO-14: Conduct Surveys and Delineate Biologically Sensitive Areas (BSAs) in Uplands.

a) A qualified biologist will survey the work areas no more than 3 days before conducting any work in upland habitat potentially supporting GGS, except as discussed in part b of this measure. Surveys will target presence of snakes and habitat, including burrows, soil cracks, crevices, and other features (BSAs) that may be suitable for use by GGS. Any identified BSAs will be flagged by the qualified biologist or otherwise identified as BSAs to be avoided during subsequent work. Mowing may first be required to increase detectability of GGS. Mowing height will be no less than 6 inches.

b) Surveys are not required in areas in which BIO-21(b) (full exclusion fencing) has been implemented because snakes have been excluded from the area.

c) When feasible and if accepted by CDFW and USFWS, DWR may also use survey techniques (e.g., scent-detection dogs) as an alternative or a supplement to surveys conducted by a qualified biologist. Such surveys would be used to identify cracks and burrows to help determine GGS occupancy, and these burrows would be flagged as BSAs to be avoided during subsequent work.

Measure BIO-15: Monitor Work in Aquatic Habitat during the Active Season. As work is conducted, DWR staff members trained in awareness of GGS will visually scan aquatic work areas for GGS. If GGS are observed, measure GGS-9 (avoid and protect) will be implemented.

Measure BIO-16: Operate Excavators to Minimize Disturbance of GGS in the Active Season. Before lowering an excavator bucket, DWR maintenance staff members will lightly brush the bucket across the surface of the canal and any associated aquatic or emergent vegetation. The excavator bucket will then be slowly lowered into the water until the bottom of the canal is encountered. Following sediment excavation, the excavator bucket will be raised vertically and slowly so that the canal banks and bank vegetation are not disturbed. DWR maintenance staff members will visually inspect excavated spoils for GGS while spoils are being deposited. If GGS are observed, measure BIO-9 (avoid and protect) will be implemented.

Measure BIO-17: Dewater Habitat. Where feasible, work areas will be dewatered. If dewatering cannot remove all water, potential GGS prey (i.e., fish and tadpoles) will be removed so that GGS and other wildlife are not attracted to the maintenance area. Dewatered areas will be allowed to dry at least 15 consecutive days before the area is excavated or filled.

Measure BIO-18: Restore Temporarily Disturbed Habitat to Pre-Project Conditions. After culvert or bridge maintenance or replacement is completed, any temporary fill and construction debris will be removed, and, wherever feasible, disturbed areas will be restored to pre-Project conditions. Before restoration, all nonbiodegradable materials will be removed. Restoration may include recontouring disturbed areas to their original configurations.

Measure BIO-19: Deposit Spoils in Areas that do not Provide GGS Habitat. When feasible, DWR maintenance staff members will deposit spoils in areas that do not provide suitable GGS upland habitat. Such areas include compacted or gravel roadbeds, orchards, and recently disked farm fields. When spoils are disposed in these areas, additional measures described in BIO-14 (surveys) are not required. If spoils disposal cannot occur as described for this measure, measure BIO-20 (monitor spoils disposal) will be implemented instead.

Measure BIO-20: Monitor Spoils Disposal to Ensure Avoidance of BSAs. If BSAs exist in planned maintenance areas, excavated spoils will be placed to avoid these BSAs. A qualified biologist trained in GGS identification will monitor all spoils disposal.

Measure BIO-21: Install, Inspect and Maintain GGS Exclusion Fencing.

a) Where site conditions allow, DWR will install fencing along the Project area as a way to divert moving snakes away from the active construction zone. Fencing will be inspected and maintained daily while maintenance activities are being conducted.

b) When feasible and safe to do so, DWR will install full GGS exclusionary fencing entirely around planned maintenance areas during periods when GGS are active. Full exclusionary fencing will be constructed 5 days prior to beginning maintenance activities and will be equipped with one-way exit funnels. If this measure is implemented, implementation of BIO-4 (inspect equipment) and BIO-14 (survey) are not required. Full exclusionary fencing will be inspected and maintained daily while maintenance activities are being conducted.

c) This measure is not needed for vegetation chemical treatment because impacts from this activity are less than significant without applying this measure.

Measure BIO-22: Conduct Pre-Activity Surveys before Grading Spoils Pile. Immediately preceding grading deposited spoils piles, a qualified biologist will survey planned work areas for GGS. Additionally, a DWR staff member trained to identify garter snakes will monitor all work as it occurs. DWR grading of deposited spoils piles will only occur during periods when GGS are likely to be active in aquatic habitat. If GGS are observed prior to or during work, the measures described in BIO-9 (avoid and protect) will be followed. Spoils pile grading may occur during the inactive season. This would happen after consultation with CDFW if it is determined that the pile is less attractive to the snake than if DWR waited to do active season work.

Measure BIO-23: Obtain and Comply with an Incidental Take Permit. If appropriate, DWR will obtain an incidental take permit from CDFW if it is determined that under CESA there is a potential for take of GGS. Incidental take permits require CDFW to fully mitigate for impacts. DWR would implement measures associated with this permit.

Implementation of these avoidance and minimization measures would reduce potentially significant impacts to a less-than-significant impact.

Western Pond Turtle

The collecting canals provide suitable aquatic habitat for western pond turtle. Direct impacts, including mortality of individuals or destruction of nests and eggs, could occur during sediment removal activities. Indirect impacts on western pond turtle could occur if potentially suitable basking habitat (e.g., logs and rocks) are removed from the Project area. Dewatering aquatic habitat prior to bridge maintenance and repair could also negatively affect western pond turtles by reducing or eliminating foraging habitat for turtles, interfering with thermoregulation, and increasing the risk of predation and mortality during overland movement by turtles in search of suitable aquatic habitat outside of dewatered maintenance areas. Potential impacts associated with vegetation chemical treatment include accidental spraying of turtles or mortality or destruction of nests in upland areas adjacent to canals. These impacts would be avoided through worker environmental awareness training (BIO-2) by training spray crews to identify western pond turtle so that individuals and nests can be avoided by vehicles and chemicals. When driving the vehicle, spray crews will be on alert for any turtle movement in upland areas. If a western pond turtle or nest is spotted in front of the moving vehicle, the spraying will stop and the vehicle will steer clear of the turtle or nest to avoid harm. Additionally, crews will avoid spraying any western pond turtles in the aquatic area.

The following mitigation measures would be implemented to address potentially significant impacts on western pond turtle during sediment removal activities, debris removal, bridge maintenance and repair, and culvert repair, replacement, and removal.

Mitigation Measures

***Implement* Measure BIO-2: Worker Environmental Awareness Train**

Measure BIO-24: Conduct Pre-Maintenance Surveys (Western Pond Turtle). A qualified biologist will conduct a pre-maintenance activity survey for western pond turtles and their nests no more than 1 week before each work period. An additional survey will be conducted after a break in work lasting two weeks or more.

Measure BIO-25: Maintain Qualified Biologist On-Call. A qualified biologist will be available on-call during Project-related activities (sediment removal, woody vegetation removal and thinning, debris removal, bridge maintenance and repair, and culvert repair, replacement, and removal). If a sensitive species is encountered during maintenance, the biologist will be called to the site and activities will cease until it has been determined that the individual, population, or nest will not be harmed. The biologist will be on-site as long as needed during the activity to ensure the protection of biological resources.

Measure BIO-26: Implement Nest Protection (Western Pond Turtle). If a western pond turtle nest is observed during pre-Project surveys or Project-related activities, a qualified biologist will indicate an appropriate sized buffer to avoid harming the nest. The buffer size will be based, in part, on the likelihood that the activity will come in contact with the nest. Heavy equipment, herbicide, and other chemicals that may harm the eggs or nest will not be used within the buffer.

Measure BIO-27: Relocate Western Pond Turtles. If western pond turtles are observed during Project-related activities, activities that could harm the turtle will cease and the on-call qualified biologist will be notified immediately. When possible, the turtle will be allowed to leave on its own. Alternatively, the biologist may capture and relocate the turtle to suitable habitat at least 200 feet away from Project activity. The biologist will assess the need to remain in the area for the remainder of the workday to ensure that the turtle is not harmed.

Measure BIO-28: Limit Impact to Potential Basking Sites. Impacts on potential basking structures (e.g., logs and rocks) will be avoided unless their removal is necessary to prevent blockage of flow, acceleration of erosion, or possible damage to DWR's facilities, as discussed in the Debris Removal activity description.

Implementing these mitigation measures would reduce the potentially significant impact on western pond turtle to a less-than-significant level. Adverse effects on the species would be minimized because surveys for western pond turtles would be conducted before Project-related activities begin and because habitat features would be avoided.

Nesting Birds, Including Loggerhead Shrike, and Northern Harrier

Special-status birds and common nesting birds are known or may nest in the vicinity of the Project area. Migratory birds are protected under the MBTA and the California Fish and Game Code. Loggerhead shrikes, and northern harriers could be present in the Project area. The anticipated work window for the Project overlaps with much of the breeding season for most nesting birds expected in the Project area (generally, March 1 through August 31) and raptors (generally, February 1 through September 30). Direct and indirect impacts on migratory birds could occur during all stages of Project maintenance activity: woody vegetation removal, woody vegetation thinning, sediment removal, and bridge repair. Direct impacts on nesting birds resulting from Project-related activities could include the removal of nests and eggs, mortality of nestlings, and abandonment of the nest. Indirect impacts on nesting birds could result from removal of potential nesting and foraging habitat and from general disturbance, including exposure to noise, vibration, and dust.

All potential impacts associated with vegetation chemical treatment would be avoided through worker environmental awareness training (BIO-2) by training spray crews to identify nesting birds so that individuals and nests can be avoided by vehicles and chemicals. The spray crew will be aware and alert to any unusual bird behavior observed during the chemical treatment (such as flushing birds out of the grass, broken-wing displaying, or defensive behavior). If any of these are observed, the crew will stop spraying and steer clear of that area. In addition, a qualified biologist will be on-call to assist including travel to the site as necessary, as described in BIO-8.

Project-related activities including sediment removal, woody vegetation removal and thinning, debris removal, bridge maintenance and repair, and culvert repair, replacement, and removal could potentially have a substantial adverse impact on nesting birds and raptors unless mitigation is incorporated. The following mitigation measures would be implemented to address this potentially significant impact.

Mitigation Measures

***Implement* Measure BIO-2: Worker Environmental Awareness Training**

***Implement* Measure BIO-25: Maintain Qualified Biologist On-Call**

Measure BIO-29: Conduct Work outside Nesting Season. When feasible, Project-related activities will be conducted outside of the nesting season (March 1 through August 31 for nesting birds and raptors other than Swainson's hawk, white-tailed kite, and burrowing owl). No additional nesting bird measures will be necessary if that occurs. When Project-related activities cannot be conducted outside of the nesting season, the following additional mitigation measures will be implemented.

Measure BIO-30: Conduct Pre-Maintenance Surveys for Special-Status Birds. During the nesting season, surveys will be conducted no more than 1 week before Project-related activities are initiated. The surveys will encompass an area sufficiently broad to ensure that the activity will avoid disturbance to nearby nests. During each survey, the biologist will inspect all potential nesting habitats (e.g., trees, shrubs, bridges, utility poles, and ruderal habitat) in and immediately adjacent to the impact areas for nests. If a lapse in Project-related work of 2 weeks or longer occurs, another focused survey will be conducted before Project work can be reinitiated.

Measure BIO-31: Implement Nest Protection. If an active nest is found close to the work area (i.e., typically within 300 feet for raptors, 200 feet for water birds, and 100 feet for passerines), a qualified biologist will determine the size of a disturbance-free buffer zone to be established. A qualified biologist may determine that a reduction in the typical disturbance-free buffer is allowed where the type of activity, location of nest, and species of bird suggest that the birds would not abandon the active nest with a reduced buffer. For reduced buffers, a qualified biologist will monitor bird behavior in relation to work activities to ensure that the birds do not exhibit abnormal nesting behavior that may cause reproductive failure (e.g., nest abandonment and loss of eggs and/or young).

Implementing these mitigation measures would reduce disturbance from equipment and maintenance activities in the vicinity of birds during this sensitive period, reducing the potentially significant impact on nesting birds to a less-than-significant level. Potentially adverse effects on these species and their habitat would be largely avoided. If avoidance is infeasible, the impacts on their habitat are mitigated by these measures to substantially reduce the adverse effects on these birds.

Tricolored Blackbird

Because the work window for the Project overlaps with the breeding season for tricolored blackbird (generally, mid-March through early August [Beedy and Hamilton 1999]), Project-related activities could potentially have direct and indirect impacts on the species. Direct and indirect impacts on nesting tricolored blackbirds could occur during all stages of Project maintenance activities: woody vegetation removal, vegetation thinning, sediment removal, debris removal, bridge maintenance and repair, and culvert repair, replacement, and removal. Direct impacts on nesting tricolored blackbirds resulting from Project-related activities could include the removal of nests and eggs, mortality of nestlings, and abandonment of the nest. Indirect impacts on tricolored blackbirds could result from removal of potential nesting habitat (specifically, Himalayan blackberry, young willow thickets, and California wild rose) and from general disturbance, including exposure to noise, vibration, and dust.

All potential impacts associated with vegetation chemical treatment would be avoided through worker environmental awareness training (BIO-2) by training spray crews to identify nesting tricolored blackbirds so that individuals and nests can be avoided by vehicles and chemicals. The spray crew will be aware and alert to any unusual bird behavior observed during this chemical treatment (such as flushing birds out of the grass, broken-wing displaying, or defensive behavior). If any of these are observed, the crew will stop spraying and steer clear of that area. In addition, a qualified biologist will be on-call to assist including travel to the site as necessary as described in BIO-8.

Because the population of tricolored blackbirds in California has declined precipitously in recent years (Meese 2014), potential Project-related impacts on the greater population of tricolored blackbirds in the State could be significant. The following mitigation measures would be implemented to address this potentially significant impact.

Mitigation Measures

***Implement* Measure BIO-2: Worker Environmental Awareness Training**

***Implement* Measure BIO-25: Maintain Qualified Biologist On-Call**

Measure BIO-32: Conduct Work outside Nesting Season (Tricolored Blackbird). If feasible, Project-related activities shall be conducted outside of the nesting season for tricolored blackbird (mid-March through early August [Beedy and Hamilton 1999]). If work cannot be conducted outside the breeding season of the tricolored blackbird, the following additional mitigation measures shall be implemented.

Measure BIO-33: Conduct Pre-Maintenance Surveys for Tricolored Blackbird. Pre-maintenance surveys for nesting tricolored blackbirds shall be conducted as described previously for Measure BIO-30 (Conduct Pre-Maintenance Surveys for Special-Status Birds). If more specific guidance is developed as a result of the recent CESA candidate designation, that guidance shall be used to direct surveys for nesting tricolored blackbirds.

Measure BIO-34: Implement Nest Protection (Tricolored Blackbird). If an active nest is detected in the Project area during the surveys previously discussed, a 300-foot no-disturbance buffer shall be established around the nest. No work shall occur within the 300-foot buffer until the nest is determined to have fledged or failed. Reductions in the standard buffer size shall be discussed with and may be approved by CDFW. A qualified biologist shall be on-site to monitor known nests to ensure that Project-related activities do not affect nest success.

Implementing these mitigation measures would reduce the potentially significant impact on tricolored blackbirds to a less-than-significant level. Potentially adverse effects on these species and their habitat would be largely avoided. If avoidance is infeasible, the impacts on the species and its habitat would be substantially reduced.

Swainson's Hawk and White-Tailed Kite

Swainson's hawks are protected under the MBTA and the California Fish and Game Code and are designated as a threatened species under CESA. White-tailed kites are protected under the MBTA and are a fully protected species under the California Fish and Game Code.

Because the work window for the Project overlaps with the breeding season for these raptors (generally, March 1 through September 15 for Swainson's hawk and February 1 through September 30 for white-tailed kite), Project-related activities could potentially have direct and indirect impacts on Swainson's hawks and white-tailed kites. Direct and indirect impacts could occur during all stages of Project maintenance activities including: woody vegetation removal, vegetation thinning, sediment removal, and bridge repair. Direct impacts on nesting Swainson's hawks and white-tailed kites could include the removal of nests and eggs, mortality of nestlings, and abandonment of the nest. Indirect impacts could result from removal of potential nesting habitat (specifically, cottonwoods, oaks, and willows) and from general disturbance, including exposure to noise, vibration, and dust. Vegetation chemical treatment would not result in impacts to Swainson's hawk

or white-tailed kite since this activity is a short-duration, transitory activity conducted mainly within channels and would not impact nesting or foraging habitat of these two species or impact nesting sites. Project-related activities including sediment removal, debris removal, bridge maintenance and repair, and culvert repair, replacement, and removal could potentially have a substantial adverse impact on Swainson's hawk and white-tailed kite unless mitigation is incorporated. The following mitigation measures would be implemented to address this potentially significant impact. These measures were developed using the Staff Report Regarding Mitigation for Impacts to Swainson's Hawks (*Buteo swainsoni*) in the Central Valley of California (CDFG 1994) and include suggested mitigation measures from the Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (Swainson's Hawk Technical Advisory Committee [SHTAC] 2000).

Mitigation Measures

***Implement* Measure BIO-2: Worker Environmental Awareness Training**

***Implement* Measure BIO-25: Maintain Qualified Biologist On-Call**

Measure BIO-35: Conduct Work Outside Nesting Season (Swainson's Hawk and White-Tailed Kite). When feasible, Project-related activities will be conducted outside of the nesting season for Swainson's hawk and white-tailed kite (nesting season: February 1 through September30 for both species). When work is conducted outside of the nesting season, no other measures apply. When work cannot be conducted outside the breeding season for Swainson's hawk and white-tailed kite, the following additional mitigation measures will be implemented.

Measure BIO-36: Conduct Pre-Maintenance Activity Surveys (Swainson's Hawk and White-Tailed Kite). Pre-maintenance nesting surveys will be conducted by a qualified biologist in accordance with the Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (SHTAC 2000). This protocol specifically applies to Swainson's hawk but will also cover the survey needs for white-tailed kite. Surveys will be required before the start of Project activities during the species' nesting season (February 1 through September 30).

Measure BIO-37: Implement Nest Protection (Swainson's Hawk and White-Tailed Kite). If nesting Swainson's hawks or white-tailed kites are identified within 0.25 mile of Project site, a qualified biologist will determine whether nest monitoring is needed for activity that will occur within 600 feet to 0.25 miles from the nest. This will be based on the type of activity and the location of the nest. Work will not occur within 600 feet of the nest until the young have fledged, unless approved by CDFW.

Implementing these mitigation measures would reduce the impact on Swainson's hawk and white-tailed kite to a less-than-significant level. With implementation of these measures, potentially adverse effects on these species and their habitat would be largely avoided. If avoidance is infeasible, Project-related activities would be closely monitored by a qualified biologist, and maintenance personnel would be notified about agitated behavior by birds in the nest in an attempt to reduce the potential for nest abandonment.

Burrowing Owl

Direct and indirect impacts on burrowing owl could occur during Project-related activities, including sediment removal and bridge repair. Direct impacts on nesting burrowing owl include nestling mortality and abandonment of the nest caused by Project-related disturbance. Indirect impacts could

result from removal of potential nesting habitat (small-mammal burrows along levee berms) and from general disturbance, including exposure to noise, vibration, and dust.

All potential impacts associated with aquatic vegetation chemical treatment would be avoided through worker environmental awareness training (BIO-2: Worker Environmental Awareness Training) by training spray crews to identify burrowing owls so that individuals and occupied burrows can be avoided by vehicles. The spray crew will be aware and alert to flushing burrowing. If burrowing owls are observed, the crew will stop spraying and steer clear of that area. In addition, a qualified biologist will be on-call to assist including travel to the site as necessary as described in BIO-8 (Cover Excavated Areas at Night and Provide Escape Ramps**)**.

With the exception of vegetation chemical treatment, project-related activities could potentially have a substantial adverse impact on burrowing owl unless mitigation is incorporated. The following mitigation measures would be implemented to address this potentially significant impact. They were developed using the Staff Report on Burrowing Owl Mitigation (CDFG 2012).

Mitigation Measures

***Implement* Measure BIO-2: Worker Environmental Awareness Training**

***Implement* Measure BIO-25: Maintain Qualified Biologist On-Call**

Measure BIO-38: Conduct Pre-Maintenance Activity Nesting Burrowing Owl Surveys. A minimum of 30 days before initiation of Project-related activities, a qualified biologist (defined in the burrowing owl staff report, CDFG 2012) will conduct a habitat assessment (reconnaissance survey), as indicated by the burrowing owl staff report (CDFG 2012), to determine suitability of habitat for burrowing owls and/or sign of active burrows. If suitable habitat is found, but no sign of owls or active burrows, Take Avoidance Surveys will be initiated (as described in the burrowing owl staff report, CDFG 2012). The first Take Avoidance Survey will occur not less than 14 days prior to the start of Project-related activities and the second will occur within 48 hours prior to the start of Project-related activities. If owls or signs of presence are found during the habitat assessment or Take Avoidance Surveys, and the maintenance activity is occurring between February 1 and August 31, Breeding Season Surveys will be initiated to detect additional individuals or active burrows, as described in Appendix D of the burrowing owl staff report (CDFG 2012); if the maintenance activity is occurring between September 1 and January 31, Non-Breeding Season Surveys will be initiated.

Measure BIO-39: Avoid Active Burrowing Owl Nest Sites. If active burrows are detected in the area where maintenance activities will occur, a qualified biologist will establish disturbance-free buffers. During the breeding season (February 1–August 31), a buffer of 600 feet from the nest is typically established unless the biologist can determine that the maintenance activity will not disturb the owl or nest. No Project-related activities will be allowed within the buffer during this time. During the non-breeding season (September 1–January 31), a disturbance-free buffer of 200 feet is typically established (per the low-disturbance recommendations of burrowing owl staff report, CDFG 2012). During the non-breeding season, Project-related activities will not occur within the buffer unless through consultation with CDFW. Consultation with CDFW may also result in over-wintering owls being passively excluded from occupied burrows. Implementing these mitigation measures would reduce the impact on burrowing owl to a less-than-significant level. Flagging nest burrows would allow for avoidance of adverse effects on the species during Project-related activities. Close monitoring of the nest burrows would provide an on-site biologist with information sufficient to determine whether to stop work in situations where there is risk of nest abandonment.

Special-Status Plants

Woolly rose-mallow has been recorded in the Project area. No other special-status plant occurrences have been reported in the Project area; however, the potential for special-status plants to be present in the Project area cannot be dismissed because protocol-level surveys have not been conducted, suitable habitat is present, and searches of the CNDDB have returned records of the plants in the region. The potential for occurrence of these plants was discussed in Appendix E.

Implementing the Project would result in the disturbance of the bed and banks of collecting canals that could support habitat for Sanford's arrowhead and woolly rose-mallow. Disturbance or removal of these plants would be considered a significant impact because of their rarity in California as defined by CNPS and CDFW.

The following mitigation measures would be implemented to reduce this potentially significant impact on Sanford's arrowhead and woolly rose-mallow.

Mitigation Measures

Measure BIO-40: Conduct Pre-maintenance Surveys (Plants). A qualified botanist will conduct focused surveys for Sanford's arrowhead and woolly rose-mallow in areas of suitable habitat within the Project area. Surveys will be conducted during the bloom periods and before the implementation of Project-related activities.

Measure BIO-41: Install Buffers around Plant Populations. Disturbance-free buffers will be established by fencing or staking, typically 50 feet from the wooly rose-mallow or Sanford's arrowhead plant populations. No Project-related activity will occur in the buffer area unless a qualified biologist determines it is feasible to avoid harming the plant population and monitors the activity that is occurring within 50 feet.

Measure BIO-42: Avoid Use of Chemicals. Herbicides and other chemicals that might harm special-status plants will not come in contact with special-status plants.

Implementing these mitigation measures would reduce the potentially significant impact on special-status plants to a less-than-significant level. These measures emphasize avoiding any rare plant populations discovered on-site. If avoidance is infeasible, then consultation with CDFW regarding restoration and compensation options would ensue. As a result, Project impacts on these rare plant populations would be minimized.

b) **Less than Significant Impact with Mitigation.** As previously described, riparian habitat is present in scattered locations in small patches with limited structural diversity. Trimming and removal of riparian vegetation may be a necessary precursor of other maintenance activities, such as sediment removal and structure maintenance, because vegetation can impair visibility and equipment access at the work sites.

Woody vegetation management on the banks of the collecting canals or adjacent to the top of bank of the collecting canals would result in temporary impacts on this riparian habitat. The amount of woody riparian vegetation that would require management to facilitate access to the canals cannot be precisely quantified and may vary from year to year depending on the location and nature of work; however, it is estimated that not more than 1.0 acre of woody riparian vegetation on the banks would require management during a 5-year period of time. California native trees with a dbh greater than 4

inches would be avoided or preferentially trimmed, and would be removed only in emergency situations when removal is necessary to avoid imminent damage to structures or facilities. No permanent impacts on riparian habitat would occur as a result of woody vegetation management because vegetation that is trimmed would naturally regenerate over time (i.e., 1–2 years in most cases).

In some canal reaches (approximately 3 miles of canal), young willows (dbh less than 4 inches) establish within the center of the channel where the duration of water in the canal and soil conditions support this growth. Amplified growth of these willows has occurred as a result of recent drought and reduced flow conditions. SMY staff typically manage such woody and emergent vegetation by annually conducting chemical treatment in the center of the canal as needed. This riparian vegetation will be removed along with sediment to improve water conveyance. Not more than 10 acres of this vegetation in the center channel of the canal would be removed during a 5-year period. There is an instance, and possibly a few instances, where native trees with a dbh greater than 4 inches have established within the center of the channel. These trees will be evaluated to determine if leaving them would create a potential emergency situation as described above. These trees may need to be removed.

The Project would result in temporary removal of up to 1.0 acre of native riparian habitat from the banks of the collecting canals, and permanent removal of up to 10 acres of heavily disturbed emerged young willows from the center of the canals and a few trees that are also growing in the center of these canals. By removing the 10 acres of disturbed vegetation, DWR is likely to reduce the amount of chemical treatments needed every year to keep water flowing. Although removal of the 10 acres is intended to be permanent, conditions of the canal at these locations will likely allow for regrowth, and vegetation will need to be routinely removed by chemical treatment or during sediment removal as part of routine maintenance activities to ensure water conveyance and reducing the risk of flooding.

Riparian habitat can vary significantly in the level of functions and values that it provides. For example, dense forested areas provide an array of complex functions as compared to young willow sprouting from a collecting canal. Even so, this habitat is considered a sensitive natural community, and therefore, this impact is considered a potentially significant impact without mitigation.

The following mitigation measures would be implemented to address this potentially significant impact.

Mitigation Measures

Measure BIO-43: Avoid and Minimize Vegetation Treatment and Removal. In the Project area, impacts on riparian habitat and sensitive natural communities would be avoided to the extent feasible. In many situations, equipment can be operated to avoid disturbing isolated riparian trees or low-height riparian scrub habitat. For example, the long-arm excavator can reach over vegetation to transfer sediment from the canal to the spoil disposal site. The extent of riparian and freshwater emergent wetland vegetation that would be removed would be limited. DWR will implement the following avoidance and minimization measures:

a) Avoid removal and trimming of riparian vegetation to the extent practicable by avoiding areas of dense riparian vegetation;

b) Avoid removal of riparian vegetation along the banks of the canal to the extent practicable to maintain riparian vegetation along the banks and to protect the banks from erosion;

c) Keep the clearing and blading of vegetation, especially native riparian vegetation and native oaks, to the minimum necessary to facilitate temporary vehicle access for maintenance requirements, to the extent practicable.

d) Limit trimming and removal of California native trees to those with dbh less than 4 inches. Avoid removal of native trees with a trunk dbh greater than 4 inches, where feasible.

Measure BIO-44: Enhance and Restore Riparian Vegetation. Where native woody riparian vegetation cannot be feasibly avoided and needs to be removed, then DWR will implement one of the following measures:

a) Enhance similar habitat elsewhere within the canals or adjacent areas by removing invasive nonnative vegetation at a ratio of 1 acre of removed invasive nonnative vegetation for each 1 acre of impacted native woody riparian habitat; or

b) Implement a restoration plan prepared by a qualified biologist in coordination with CDFW to restore similar habitat at an adjacent offsite or onsite location that provides appropriate mitigation to offset the loss of functions and values based on the relative quality of riparian habitat being removed; or

c) Secure similar habitat credits or acres at a CDFW-approved mitigation bank for impacts at the Project area at a ratio of 1 acre credit for 1 acre impacted native riparian habitat.

The mitigation measures will provide appropriate mitigation to offset the loss of functions and values based on the relative quality of riparian habitat being removed. Implementing these mitigation measures would reduce the potentially significant impact on native riparian habitat to a less-than-significant level.

c) **Less than Significant Impact with Mitigation.** Maintenance activities that take place in flood control channels (sediment removal, structure maintenance, vegetation management on banks and in channel) have the potential to affect federally protected wetlands and waters of the United States through the discharge of dredge or fill material in a riverine, freshwater emergent wetland, open water, or seasonal wetland aquatic habitats. In these cases, coverage under Sections 404 and 401 of the CWA would therefore be necessary to conduct Project maintenance activities in channels for activities that would result in discharge of dredge or fill material.

All aquatic habitat in the collecting canals are potentially jurisdictional (Table 5). Along the 60 miles of canals (3,108 acres, including the area 200 feet from channel edge), this includes aquatic habitat (228 acres of perennial riverine, open water, seasonal riverine, unvegetated banks below the ordinary high water mark [OHWM], and lacustrine), wet meadow (120 acres), and patches of freshwater emergent marsh within the channel and along the channel margin (40 acres). Wetland vegetation in the collecting canal includes nonnative SAV, such as *Egeria* and parrot-feather, and native emergent vegetation, such as tule and cattail, which is typically located along the margins.

Excavation of sediment would temporarily affect aquatic habitat (up to 228 acres total, up to 76 acres per year), and would permanently affect wetland habitat in those locations where emergent and woody vegetation is present in the center of the canal (up to 40 acres of emergent wetlands over five years and 10 acres of woody vegetation). Emergent wetland vegetation along the channel margins

would be avoided. Ecological function could be enhanced through direct removal of nonnative vegetative biomass and increased channel capacity, which would allow increased flow rates that could minimize or delay SAV establishment. To avoid impacts on native emergent wetland vegetation at the channel margins, sediment removal activities would scoop sediment and nonnative invasive SAV from the center of the channel.

Other potentially jurisdictional habitats, such as wet meadow and some riparian habitat, also occur scattered along the banks throughout the Project area. Vegetation trimming to provide equipment access and spoil placement has the potential to affect these habitats. Equipment would be operated to avoid wetland and riparian vegetation to the fullest extent feasible.

Repairs to Bridge CC-2 involve removing the existing bridge and replacing it with pre-cast box culverts and headwalls. Riprap will be placed adjacent to the culvert to tie into the existing canal slopes: approximately 129 cy of 18-inch minus riprap would be placed 70 cy below the OHWM and 59 cy above. Repairs of Bridge CC-4 would include installing concrete abutments and aprons on both sides of the existing bridge. Approximately 40 cy of 18-inch minus riprap would be placed 20 cy below the OHWM and 20 cy above. Approximately 31 cy of soil would be replaced with approximately 31 cy of concrete. Impacts associated with bridge repairs would be permanent. The following mitigation measures would be implemented to address this significant impact on jurisdictional waters.

Mitigation Measures

***Implement* Measure HYD-1: Prepare and Implement Appropriate Best Management Practices.** Best management practices (BMPs) will be implemented to avoid and minimize impacts on water quality.

***Implement* Measure BIO-43: Avoid and Minimize Vegetation Treatment and Removal**

Measure BIO-45: Avoid and Minimize Wetland Impacts. Prior to initiation of maintenance activities, a qualified biologist will identify potential riparian habitat, wetlands, waters of the U.S. or State. Where feasible, DWR will mark the boundaries of these areas using temporary fencing, high-visibility flagging, or other means that are equally effective in clearly delineating the boundaries. When feasible, Project maintenance activities will be excluded from these areas and sited to avoid areas with sensitive resources.

Measure BIO-46: Enhance and Restore Wetlands. If wetland vegetation cannot be feasibly avoided and needs to be removed in order to maintain canal conveyance, then DWR will implement one of the following measures:

a) Enhance wetland habitat elsewhere within the canals or adjacent areas by removing invasive nonnative aquatic and/or wetland vegetation at a ratio of 1 acre of removed invasive nonnative riparian vegetation for each 1 acre of impacted native riparian habitat; or

b) Implement a restoration plan prepared by a qualified biologist in coordination with USACE to restore wetland habitat at an adjacent offsite or onsite location by planting native wetland vegetation species at a ratio of 1 acre of wetland habitat for each 1 acre of impacted native wetland habitat; or

c) Secure native wetland habitat credits at a USACE-approved mitigation bank for impacts at the Project area at a ratio of 1 acre credit for 1 acre impacted native wetland habitat.

If maintenance activities would result in direct impacts on wetlands and other waters, compliance with the permit conditions from regulatory permitting processes will be required. All measures developed in consultation with the respective regulatory agencies (USACE and RWQCB) through these processes will be implemented to mitigate adverse effects. Implementing these mitigation measures would reduce the potentially significant impact on native wetland habitat to a less-than-significant level.

d) **Less than Significant Impact.** Migratory fish species, such as Chinook salmon and green sturgeon, do not occupy the collecting canal system in the Project area. Available riparian habitat is fragmented and does not provide a continuous corridor for wildlife movement. The Project area is not located in a known migratory corridor for wildlife. Most individual Project maintenance activities would be performed in a relatively small area and would be completed in less than 1 month. The extent of riparian and freshwater emergent wetland vegetation that would be removed would be limited. Thus, impacts on native resident or wildlife movement would be less than significant.

e) **No Impact.** Local plans and policies that apply to biological resources include City and County General Plans and tree protection ordinances.

In their conservation or land use elements, City and County General Plans often promote the protection of fish, wildlife, native plants, and their habitats; riparian corridors; and wetlands and other waters. In general, State agencies such as DWR are not subject to local General Plan elements; however, to the extent feasible, maintenance activities would incorporate conservation goals of local General Plans that are conceptually consistent with DWR's environmental stewardship policy. In particular, mitigation measures (summarized in previous sections) designed to reduce the Project impacts on special-status species, sensitive habitats, protected wetlands and waters, and water quality would be implemented to ensure that Project-related impacts on these resources are less than significant. In addition, the Project maintenance activities are designed to reduce flood risk; therefore, Project goals and objectives are consistent with City and County General Plan goals identified to protect people and property from flood damage.

Many cities and counties have tree protection ordinances that generally protect mature California native trees, such as oaks, from removal by promoting avoidance measures instead of removal or, where trees cannot be avoided, replacement planting. It is common for city and county General Plans to include exemptions to the tree preservation ordinances for trees that need to be removed for public safety reasons. If removal of one or more protected trees is necessary for public safety reasons, DWR would coordinate with CDFW, USFWS, NMFS, and the applicable municipalities prior to removal of a protected tree. With the exception of tree removal for public safety reasons, DWR does not expect to remove native trees with a dbh of greater than 4 inches for Project maintenance activities. This standard is stricter than those in most tree protection ordinances. For these reasons, Project maintenance activities would not conflict with local tree protection ordinances.

Project maintenance activities would not conflict with any local plans or policies.

f) **No Impact.** Two regional habitat conservation plans that cover much of the Project area are in development, but neither has been adopted. The Yuba-Sutter Resource Conservation Plan is in the early stages of development. The Feather River Regional Permitting Program Habitat Conservation Plan (FRRPP HCP) is being prepared by DWR, and planning for that effort is being closely

coordinated with the planning for the Project because the two cover much of the same area and have consistent flood management objectives.

In summary, the Project area does not include any areas that are within the planning purview of an adopted habitat conservation plan, although, as discussed previously, DWR has taken care to maintain consistency between the Project and the FRRPP HCP. Therefore, the Project does not conflict with any adopted habitat conservation plan or natural community conservation plan or any other approved local, regional, or State habitat conservation plan.

3.3.5 Cultural Resources

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less-Than-Significant Impact*	*No Impact*
5. CULTURAL RESOURCES — Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in Section15064.5?	☐	☒	☐	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section15064.5?	☐	☒	☐	☐
c) Cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code 21074?	☐	☒	☐	☐
d) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☒	☐
e) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

Efforts to identify cultural resources within the Project footprint and surrounding area consisted of a records search, archival research, a cultural resources survey, and consultation with Native Americans. These efforts are documented, and explained in greater detail, in the cultural resources technical report (ESA 2016). The potential for impacts to two bridges and 12 miles of canals prioritized for maintenance during 2016 are discussed at a project-specific level. The remaining 48 miles of canals and bridge are analyzed at a programmatic level.

Environmental Setting

Prehistoric Setting

Humans first entered the Central Valley sometime prior to 13,000 years ago. At that time Pleistocene glaciers had receded to the mountain crests leaving conifer forests on the mid and upper elevations of the Sierra Nevadas and a nearly contiguous conifer forest on the Coast Ranges. The Central Valley was covered with extensive grasslands and riparian forests. The central California Delta system had not yet developed. The Central Valley was home to a diverse community of large mammals, which soon became extinct.

Pleistocene-age landforms are common in the Sacramento Valley, particularly east of the Sacramento River. Riverbank and Modesto formations near the Valley floor have been cross-cut by modern river channels exposing the most evidence of human occupation dated to this period. Late Pleistocene-to-early Holocene fluted points and eccentric crescents are the most recognizable signatures of this early occupation. Though it has often been put forth that these people were focused on large game hunting, evidence remains scant, as does understanding of life ways during this period.

Lower Archaic Period (10,500–7000 BP)

Climate change during this period led to the rapid expanse of oak woodland and grassland prairies across the Central Valley. After 11,000 BP a significant period of soil deposition ensued in the Valley, capping

older Pleistocene formation. This was followed around 7000 BP by a second period of substantial soil deposition in the Valley.

It was during this period that the first evidence of milling stone technology appears, indicating an increased reliance on processing plants for food. These milling stones are exclusively hand stones and milling slabs. They are frequently associated with a diverse tool assemblage including cobble-based pounding, chopping, and scraping tools. It is commonly held these milling tools were used for processing seeds. However, recent archaeological work has indicated a heavy reliance on nut crops as well. This period also saw the development of well-made bifaces used for projectile points and cutting tools. These are commonly formed from meta-volcanic greenstone and volcanic basalts.

Middle Archaic Period (7000–2500 BP)

After about 7000 BP California was marked by a change in climate with warmer and drier conditions throughout the region. Oak woodland expanded upslope in the Coast Ranges and conifer forest moved into the alpine zone in the Sierra Nevadas. The Central Valley was changing as rising sea levels led to the formation of the Sacramento-San Joaquin Delta and associated marshlands. An initial period of upland erosion and lowland deposition was followed by a long period of stabilization of landforms. Scant evidence of human occupation from this period has been found in the Sacramento Valley or the adjacent Coast Ranges. Most evidence comes from the Sierra Foothills in Calaveras and Tuolumne Counties.

Around 7000 BP mortars and pestles appear in assemblages, particularly along marsh-side, riparian, and estuarine environments. Their earliest use was in the lowland valleys of the Diablo Range and Sierra foothills, from which they spread. They are documented in the Delta by 5000 BP, and in the Coast Ranges around 2500 BP. Hand stones and milling slabs continue to be used, but to a lesser extent than earlier periods. The shift to mortars and pestles may be an indicator of increased sedentism, with more permanent ssettlements established around important resources. These more established settlements were primarily along riparian corridors.

Evidence for increasing residential stability in the Central Valley around 5000 BP is best represented by the Windmiller Tradition. The Windmiller assemblage is typified by large cemeteries, specialized tool assemblages, and an abundance of non-utilitarian items including “charm stones,” shaped Olivella wall-beads, Haliotis ornaments, and other decorative items. Another distinctive element at Windmiller sites are westerly oriented, ventrally extended burials with elaborate material culture grave goods. Based on faunal assemblages, an increased reliance on fish may have developed during this period as well.

Upper Archaic Period (2500–800 BP)

Evidence for Upper Archaic human occupation in the Central Valley is much more extensive than for earlier periods. The development of the Holocene landscape buried older deposits, resulting in the identification of more sites from this period than from older periods of development. This has skewed the archaeological record, resulting in an apparent increase in population. Alluvial deposition was partially interrupted by two consecutive droughts known as the Medieval Climatic anomaly. These occurred between 1300 to 1000 BP and again about 650 BP.

As a result of these depositional interruptions greater temporal control of archaeological deposits has allowed a more detailed analysis of these materials. That the sites are frequently at or near the surface has resulted in the discovery of an abundance of sites dating to this period. Temporal, economic, and socio-

cultural developments are better understood than for earlier periods. The insipient diversification of culture during the Middle Archaic Period expanded in the Upper Archaic. The increased complexity of socio-political entities is marked by contrasting burial postures, artifact types and styles, and other material culture elements.

Two fundamental adaptations developed side-by-side during the Upper Archaic period, evidenced by a diversification in settlements patterns. Populations in the Valley tended towards large, high-density, permanent settlements. These villages were used as hubs from which the populace roamed to collect resources, using a wide range of technologies. These populations operated in a traditional collector economic mode. The populations in the foothills and mountains lived in less dense settlements, moving with the seasons to maximize resource returns. Tools tended to be expedient and multipurpose for use in a wide variety of activities.

As early as 4000 BP, stable communities had developed throughout the Sacramento Valley. These villages were established primarily along elevated landforms along the major rivers and tributaries. This settlement pattern intensified during the upper Archaic Period. These village sites show extended occupation as evidenced by well-developed midden, frequently containing hundreds of burials, storage pits, structural remains, hearths, ash dumps, and extensive floral and faunal remains.

Faunal assemblages at sites in riparian locations contain substantial quantities of fish bone, accompanied by fishing implements, as well as deer and elk bone. Faunal assemblages at sites located in valley grasslands are dominated by elk and Pronghorn. Artifact assemblages at these sites are diverse; including milling stones (mortars, pestles, hand stones, and milling slabs), fishing gear (harpoons, hooks, net weights, mesh gauges), hunting-related implements (projectile points, atlatl spurs, and “shaft wrenches”), wood-working tools (antler wedges), and multipurpose tools (bone awls, stone drills), as well as decorative items (stone, bone, and shell beads and pendants). Extensive trade with other groups is evidenced by imported materials including marine shell beads and ornaments, as well as obsidian and other imported stone tools and waste material.

Emergent Period (800 BP–Present)

A major shift in material culture occurred approximately 800 BP, marking the beginning of the Emergent or Late Prehistoric Period. Particularly notable was the introduction of the bow and arrow ca. 1100-700 BP). The adoption of the bow occurred at slightly different times in various parts of the Sacramento Valley, but by 740 BP it was in use in the Delta region. It is accompanied by the Stockton Serrated point, a seemingly indigenous invention, distinctive from point types used in other parts of the State. Another key element of material culture from this period include big-head effigy ornaments thought to be associated with the Kuksu religious movement. In areas where stone was scarce baked clay balls are found, presumably for cooking in baskets. Other diagnostic items from this period are bone tubes, stone pipes, and ear spools. Along rivers villages are frequently associated with fish weirs, with fishing taking on an increasing level of importance in the diet of the local populace.

Slightly later during this period (ca. 400 BP) a second minor shift occurred. The distinctive Stockton Serrated point was superseded by the Desert Side-notch point. Olivella wall-beads had previously dominated the bead typologies, but clamshell disk bead production increased. Bead production not only increased, but became decentralized, with individual households producing beads for trade. This cultural trend continued up to the point of contact of native people with those of European descent.

Ethnographic Setting

The land encompassed by the Project area was once home to the Nisenan, sometimes referred to as the Southern Maidu, and the Northern, or Koncow, Maidu. The Konkow inhabited the Feather River area west of Richbar and extending to the southwest almost to the Sutter Buttes, and the Sacramento River area from about Butte City on the south to Butte Meadows on the north. The Nisenan historically occupied a large territory in the Sacramento Valley and Sierra Nevada Mountains. Although precise boundaries are lost to history their territory roughly extended from Sacramento at the southwest, eastward along the Consumnes River to the crest of the Sierra Nevada Mountains, northward along the crest to the North Fork of the Yuba River, westward along the Yuba River to the Feather River just north of Marysville, and southward along the Feather River to its confluence with the Sacramento River. This territory encompassed a wide variety of habitats ranging from riparian along the rivers, rolling oak grasslands in the valley and foothills, and coniferous forests in the mountains (Wilson and Towne 1978:387).

The Nisenan had a loose political organization of triblets based around a number of large villages, with smaller villages and temporary camps scattered around them. In the Valley, villages were generally located on high ground near rivers and creeks. Villages were frequently found on bluffs overlooking waterways, with a preference for south facing slopes. Low-lying areas prone to inundation were also occupied because of the availability of riverine resources. At such locations artificial earthen mounds were constructed, on which a village could be established above the waterline (Wilson and Towne 1978:388-389).

Konkow villages were primarily constructed on ridges overlooking waterways where salmon and other fish were a primary food source. Acorns were also a mainstay of the Konkow diet, and were processed with mortar and pestle. During summer months many Konkow traveled to the mountains to hunt deer and other large game, the meat of which was dried and brought back to the primary village sites (Riddell 1978). Konkow villages were autonomous units centered around a “dance house,” a large semi-subterranean structure used for ceremonial purposes. Individual family dwellings were also semi-subterranean structures; approximately three meters in diameter. Elevated granaries used to store acorns were also typically found at village sites (Riddell 1978).

Structures at villages included conical houses framed with small trees or branches which were covered with bark, brush, or hides. These structures were generally about 3 meters in diameter. In warmer weather simple brush shelters or sun shades, open to the weather, were employed. Acorn granaries were constructed to store this staple of their diet. These were elevated platforms frequently covered with cedar boughs which dissuaded bugs from their store. At larger villages semi-subterranean “dance houses” were constructed, some measuring 30 meters or more in diameter (Wilson and Towne 1978:387-388).

Ethnographically several villages were noted along the Sacramento and Feather Rivers. These included: *Wolok* located at the confluence of the Sacramento and Feather Rivers, *Leuchi* (*Le’utci*) located 1.5 miles south of *Wolok* on the east bank of the Sacramento River, and *Wishuna* (*Wi·’jüna*) located 1.5 miles south of *Leuchi* and 9 miles north of Sacramento on the east bank of the Sacramento River (Wilson and Towne 1978:388).

The Nisenan had a diet typical of most tribes of the region. Acorns were the main staple of their diet. They were harvested in the fall and stored in the granaries noted above. When eaten acorns were hulled and the mealy interior was pounded into a meal or flour-like substance with fire-hardened oak or stone hopper mortars and pestles. Soap root brushes and winnowing trays were used to separate the coarser meal from

the finer flour. Acorns are high in tannic acid, which must be leached from the meal. This was done by placing the meal in a shallow earthen depression and repeatedly pouring water over the meal until an adequate proportion of the acid has been leeched away. The meal was then used to make a soup or stew or baked into a type of bread. Other nuts were also harvested and stored. These included buckeye, pine nuts, and hazelnuts. Grass seeds were collected and ground using stone hand stones and milling slabs or grinding slicks. Herbs and berries were also harvested. Roots were also eaten, in particular wild onion (*Allium* spp.) and cluster lily (*Brodiaea* spp.). Wild garlic (*Allium* spp.) and soaproot (*Chlorogalum* spp.) were collected and used as body washes (Wilson and Towne 1978:389-390).

Deer, elk, black bear, mountain lion, bobcats and rabbits were hunted using bow and arrow. Smaller game were also hunted using snares, dead falls, traps, rodent hooks, and nets. Communal drives were often employed to force small game into nets or traps. Birds, including ducks, geese, quail, dove, and crows were hunted using bow and arrow, nets, nooses, and decoys. Certain animals were considered taboo and not hunted. These included dog, coyote, wolf, grizzly bear, owls, condors, and vultures. Fish made up a substantial portion of the diet. The most important fish consumed was salmon; but eel, trout, suckers, and white fish were also harvested using weirs, nets, harpoons, and gorge hooks. Mullein and soaproot were used to poison fish which could then be collected by hand. Salmon was frequently dried, and sometimes pounded into a meal and formed into small cakes. Freshwater mussels and clams were collected along the larger waterways. Invertebrates including worms, larvae, ants, crickets, and grasshoppers were also collected (Wilson and Towne 1978:389-390).

The material culture of the Nisenan was typical of the region. Sinew back wooden bows and arrows were used for hunting, while stone knives and scrapers were used to process animals and hides. Flaked stone tools were made primarily of basalt, cryptocrystalline silicates (chalcedony, cherts, and jasper), and obsidian. Stone or fire-hardened mortars were used in tandem with stone pestles to process acorns and other food stuffs, while stone hand stones and metates were used for grinding grass seeds. Lacking a ceramic tradition, baskets were used for hauling, storage, and cooking. Basketry techniques were also used to create everything from winnowing trays to cradleboards. Clothing was minimal. Men went naked or wore a breechclout of deerskin or pounded wire grass. Women wore a short apron of wire grass, tule, or shredded maple or willow bark. When cold weather persisted, a robe of woven bird feathers was used by valley residents. In the colder climates of the hills and mountains clothing was augmented with rabbit skin robes. Adornment included a variety of clamshell and olivella shell beads, abalone pendants, slate and steatite beads and pendants, and feathers integrated in capes, clothing, and headgear (Wilson and Towne 1978:390-391).

Contact during Spanish rule of California was limited. However, the Nisenan did take in refugees escaping from the mission. In 1820 American and Hudson’s Bay Company trappers began trapping in their territory, cohabitating in a relatively peaceful manner. In 1833 a major epidemic, believed to malaria, swept through the region. It is believed that as much as 75% of the valley’s population died during this scourge. In 1839 John Sutter settled in Nisenan territory. Through persuasion and force he soon had most of the remaining Valley Nisenan on peaceful terms. A final blow to traditional life came with the Gold Rush of 1849. Indians of all affiliations were seen as less than human and a hindrance. They were actively hunted down and killed by newly arrived would be miners. A resurgence of Native culture ensued in the 1870s, but had slowly subsided by the 1890s (Wilson and Town 1978:396).

Like most Native American Central Valley inhabitants, the Konkow were decimated by what is believed to be a malaria epidemic in 1833. The Tribe was further impacted by the influx of immigrants that accompanied the Gold Rush of 1849 and subsequent decades, so that by 1910 only 900 Maidu (including Konkow) remained (Riddell 1978). Despite these low population numbers, the Konkow have been growing steadily in numbers throughout the 20th century, and there are now more than 3,500 tribal members.

Historic Setting

European American exploration of the area began in the early nineteenth century. In 1817, Spanish Captain Luis Arguello led an exploratory party up the Feather River. Gabriel Moraga also explored the Sutter County area in 1808, naming the Feather River and noting the presence of the Sutter Buttes. As part of a Mexican land grant, John Sutter owned a large part of what is today known as Sutter County. In 1842 Nicolaus Allgeier establish a ferry at the site of what would become the community of Nicolaus to cross the Feather River on the road between Sutter's Fort and Sutter's Hock Farm. In 1849, John Sutter deeded to himself, Pierson B Reading, Samuel Brannan and Henry Cheever the land for a new town, and in the same month the men laid out what would become Yuba City. In 1850, the California State Legislature incorporated Sutter County as one of the State's original 27 counties. That same year, the town of Nicolaus was established and became a major stopping point on the Feather River. Early Yuba City centered on the convergence of the Feather and Yuba Rivers, and was named the County Seat in 1856 (Gudde, 1998; Hoover, 2002).

During the Gold Rush, Yuba City was overlooked in favor of its neighbor Marysville due to the more easterly location Marysville occupied on the way to the gold fields. With the rise of agriculture in Sutter County following the Gold Rush, Yuba City and its surrounding area developed into an agricultural center. Wheat, grapes, and peaches were successfully grown and contributed to the development of the area, as did cattle and dairy ranching. Due to the abundance of water from nearby rivers, irrigation was introduced early into the area. In 1908, the citizens voted to incorporate the town of Yuba City. The Project area is in a rural area that has historically been used for agricultural purposes with little development until the modern period (Gudde, 1998; Hoover, 2002).

The SRFCP is the core of the flood protection system along the Sacramento River and its tributaries. The SRFCP began when the Flood Control Act of 1917 was passed and ended in 1961 when construction was concluded. Upon completion the SRFCP was composed of approximately 1,000 miles of levees, five weirs, control structures, and bypass channels. The system was designed so that 82% of flood discharges flow through the Yolo Bypass and only 18% in the main River channel. The northern extent of the SRFCP lies along the Sacramento River in Glenn County and includes levees along the Sacramento and Feather Rivers and many tributaries down to Sherman Island at the southern end of Sacramento County. Segments of the SRFCP levees were originally constructed by local interests and were modified to USACE flood control standards before being incorporated into the SRFCP system. Once the levee system was finalized in 1961, the State took over the operations and maintenance in accordance with USACE regulations (DWR, 2014c).

The Project area is located east of the Sutter Bypass System of the SRFCP. Prior to the construction of the bypass in 1924, the Project vicinity was a swampy marshland. The East Levee of the Sutter Bypass and its intercepting canals were constructed by the State in 1924 and enlarged in 1942 by the USACE, and returned to Reclamation ownership in 1951. The pumping stations and associated drainages (including the collecting canals that are the primary focus of the current Project) were constructed between 1924 and 1936 by the USACE, and then turned over to the Reclamation Board in 1944 (DWR, 1976).

Discussion

a) **Less than Significant with Mitigation.**

CEQA Guidelines Section 15064.5 requires the lead agency to consider the effects of a project on historical resources. A historical resource is defined as any building, structure, site, or object listed in or determined to be eligible for listing in the California Register of Historical Resources, or determined by a lead agency to be significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, or cultural annals of California.

The CRHR includes resources that have been listed in or formally determined eligible for listing in the National Register of Historic Places, as well as some California State Landmarks and Points of Historical Interest. Under U.S. Department of the Interior, National Park Service guidelines (NPS, 1997), buildings, structures, and objects usually need to be more than 50 years old to be eligible for listing in the National Register. The California Office of Historic Preservation guidelines for project review and planning call for the identification and evaluation of resources that are more than 45 years old to account for the passage of time between the period of project review and project completion. Resources that are less than 50 years old are generally excluded from listing in the National Register or California Register, unless they can be shown to be exceptionally significant.

A records search was conducted at the Northeastern Information Center (NEIC) of the California Historical Resources Information System at California State University Chico on June 1, 2015 (File No. H15-4). The results of the records search conducted at the NEIC indicate several cultural surveys previously conducted within both the 2016 priority and larger Project areas, covering approximately 40% of the 2016 priority Project area, and approximately 35% of the larger 60-mile Project area. Twenty-nine cultural resource surveys have been conducted within 0.25 mile of the larger Project area, with seven of those within or intersecting the 2016 priority Project area. Records search results indicate no prehistoric archaeological sites recorded in the Project area or the 0.25-mile of the 60-mile larger Project area. According to the NEIC records search, seven historic period sites, including a historic period archaeological site and six built structures, have been recorded in the Project area or 0.25-mile radius of the 60-mile Project area. Within the 2016 priority Project area, the records search identified seven previously recorded sites, including a segment of the Southern Pacific Railroad Grade (P-51-0099H), the Wadsworth Canal (P-51-0140), segments of the Sutter Bypass Levee (P-51-0147H), the Willow Slough Weir (P-51-0158), Weir No 2 (P-51-0159), the East Borrow Canal of the Sutter Bypass (P-51-0160), and Bridge El-5 piling remains (P-51-0161). None of these resources were recommended eligible for listing in the National or California Registers.

Archival review indicated that approximately 7 miles of the 2016 priority Project area had not previously been subjected to survey. A pedestrian survey of this remaining section was conducted by Katherine Anderson and R. Scott Baxter on September 4, 2015, to identify and evaluate potential cultural resources that could be affected by the proposed Project. Field survey re-identified the portion of the Wadsworth Canal (P-51-0140), segments of the Sutter Bypass Levee (P-51-0147H), and the Willow Slough Weir (P-51-0158) adjacent to the 2016 priority Project area. Survey determined that resources P-51-0159, P-51-160, and P-51-0161 were all demolished with the 2012 construction of the modern Weir No 2 on the Sutter Bypass. No features indicating the presence of P-51-0099H were identified by field crews. ESA staff also identified five additional historic-period

structures (the Sutter Bypass SRFCP collecting canals, Bridges CC-2 and CC-4, and two agricultural bridges) within the 2016 priority Project area. These resources were all evaluated and recommended ineligible for listing in the California and National Registers. As no historical resources eligible for listing in the California or National Registers were identified in the 2016 priority Project area, proposed repair and maintenance of the 2016 priority collecting canals and Bridges CC-2 and CC-4, would have no effect on historic properties as defined by CEQA or NEPA.

However, as previously noted, the results of the NEIC records search indicate that approximately 65% of the larger 60-mile Project area has not yet been subject to cultural resource survey. Implementation of maintenance activities in these unsurveyed areas could result in significant impacts to cultural resources. During the course of flood control structure maintenance and repair, unevaluated structures and canals meeting the 45-year threshold for listing in the California Register and located within the Project area will need to be analyzed for their eligibility for listing in the California or National Registers. In the event that analysis determines these structures as eligible for listing in the California or National Registers, direct or indirect impacts to these resources have the potential to result in substantial adverse changes to their character and a potentially significant impact to historic architectural resources.

Mitigation Measure

Mitigation Measure CUL-1: Pre-Maintenance Analysis of Architectural Historical Resources. When specific locations for canal maintenance activities are identified, DWR will be required to complete a cultural resources investigation in line with the section 106 of the National Historic Preservation Act that includes, at a minimum:

- An updated records search, as appropriate, at the appropriate regional Information Center of the California Historical Resources Information System.
- If the Project footprint has not been previously surveyed for cultural resources, an intensive cultural resources survey conducted by qualified DWR cultural staff or a qualified historian or architectural historian meeting the Secretary of the Interior's standards for architectural history, documenting on DPR forms and evaluating resources 45 years or older within and adjacent to the Project footprint for listing in the California or National Registers.
- A report disseminating the results of this research.
- Recommendations for additional mitigation to resolve adverse impacts to recorded cultural resources.
- In the event that the proposed maintenance activity or historical resource is located within federally managed lands, or requires federal approval, consultation with SHPO.

If a historical resource is present that could be adversely impacted by maintenance activities, DWR will:

a) Determine if avoidance is feasible.

b) If avoidance is not feasible, alterations, including relocation, to historic buildings or structures will conform to the Secretary of the Interior's *Standards for the Treatment of Historic Properties and Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings* (NPS, 1995). This will reduce impacts to less than significant.

c) If the impacted structure is state owned or the impact is the result of a state project PRC 5024.5 will be followed.

d) If significant impacts to identified historic resources are unavoidable, DWR will prepare a treatment plan including but not limited to photo documentation and public interpretation of the resource, as feasible based on public access. Photo documentation will be conducted by a Secretary of the Interior–qualified architectural historian, documenting the affected historic resource in accordance with the National Park Service's Historic American Buildings Survey (HABS) and/or Historic American Engineering Record (HAER) standards. Such standards typically include large-format photography using (4x5) negatives, written data, and copies of original plans if available. The HABS/HAER documentation packages will be archived at local libraries and historical repositories, as well as the regionally appropriate Information Center of the California Historical Resources Information System.

e) Public interpretation will also be considered as a mitigation measure, as feasible based on public access. Public interpretation of historic resources at their original site may occur in the form of a plaque, kiosk, or other method of describing the building's historic or architectural importance to the general public. Other forms of information dissemination may also be appropriate. The recordation of a building or structure to HABS/HAER standards and public interpretation efforts would reduce impacts on significant historic buildings and structures, but such efforts typically do not reduce them to a less-than-significant level (CEQA Section 15126.4(b)(2)). Impacts to significant historic buildings or structures under these circumstances would remain significant and unavoidable.

Once areas of maintenance activity have been cleared of historic architectural resources, no additional analysis will be required under CEQA for those maintenance activities. If historic architectural resources are identified during archival review, these resources will be resurveyed and their documentation updated to reflect the current status of physical integrity prior to future maintenance activities.

b-c) **Less than Significant with Mitigation.**

CEQA requires the lead agency to consider the effects of a project on archaeological resources and to determine whether any identified archaeological resource is a historical resource. CEQA Guidelines Section 15064.5 also requires consideration of potential project impacts on "unique" archaeological resources that do not qualify as historical resources. PRC Section 21083.2 defines a unique archaeological resource as an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets one or more of the following criteria. The resource:

1. Contains information needed to answer important scientific research questions, and there is a demonstrable public interest in that information.
2. Has a special and particular quality, such as being the oldest of its type or the best available example of its type.
3. Is directly associated with a scientifically recognized important prehistoric or historic event or person.

PRC Section 15064.5(c) (4) provides that, if an archaeological resource is neither a unique archaeological resource nor a historical resource, the effects of a project on the resource are not considered significant.

In September of 2014, the California Legislature passed Assembly Bill (AB) 52, which added provisions to the PRC regarding the evaluation of impacts on tribal cultural resources under CEQA, and consultation requirements with California Native American Tribes. In particular, AB 52 now requires lead agencies to analyze project impacts on "tribal cultural resources," separately from archaeological resources (PRC § 21074; 21083.09). The Bill defines "tribal cultural resources" in a new section of the PRC Section 21074. AB 52 also requires lead agencies to engage in additional consultation procedures with respect to California Native American Tribes (PRC § 21080.3.1, 21080.3.2, 21082.3). Finally, AB 52 requires the Office of Planning and Research to update Appendix G of the CEQA Guidelines by July 1, 2016 to provide sample questions regarding impacts to tribal cultural resources (PRC § 21083.09).

DWR staff requested a search of the Native American Heritage Commission's (NAHC) Sacred Lands File (SLF) database on April 8, 2015. The NAHC responded on May 28, 2015, that a search of the sacred lands file did not indicate the presence of Native American cultural resources in the area, but cautioned that the absence of specific site information in the sacred lands file does not indicate the absence of cultural resources in the Project area. The NAHC response also included eight contacts who have expressed an interest in this area. DWR contacted the individuals and organizations affiliated with the area as identified by the NAHC by certified letter on July 24, 2015, to solicit their comments and concerns regarding the Project. Responses have been received by DWR from the Enterprise Rancheria of Maidu Indians and the United Auburn Indian Community of the Auburn Rancheria, and consultation with the Tribes is ongoing.

Results of the cultural resources records search conducted at the NEIC indicate that 35 percent of the 60-mile Project area has been previously surveyed, and no prehistoric archaeological sites have been recorded within the alignment or within a 0.25-mile buffer. Canals within the Project area include constructed canals and natural waterways that have been historically modified for modern uses. These historically natural waterways would have been attractive for use by Native peoples who may have left physical cultural manifestations such as habitation or tool-making sites or features. As such, earth-moving activities associated with the maintenance and repair of the canals have the potential to result in the damage or destruction of these resources, which would be considered a potentially significant impact to cultural resources. Implementation of the following mitigation measures would reduce potential impacts to historical archaeological resources to a less-than-significant level by identification and treatment of archaeological and/or cultural resources discovered during the course of pre-maintenance cultural resource studies.

Mitigation Measure

Mitigation Measure CUL-2: Pre-Maintenance Analysis of Archaeological Resources. When specific locations maintenance activities are identified DWR will complete a cultural resources investigation that includes, at a minimum:

- An updated records search at the appropriate Information Center of the California Historical Resources Information System (CHRIS), as appropriate.
- Letters about the Project will be sent to Native American Tribes who have traditionally used the Project area. Letters will inform the Tribes of DWR's policy of consultation and ask for the Tribes to help with the identification of archaeological resources in the Project area.

- If the project footprint has not been previously subjected to pedestrian survey for cultural resources, an intensive cultural resources survey conducted by qualified DWR cultural staff or a qualified archaeologist meeting the Secretary of the Interior's standards for prehistoric archaeology, documenting on DPR forms and evaluating resources within and adjacent to the project footprint for listing in the California or National Registers.
- Subsurface presence/absence testing and boundary definition testing will be implemented as appropriate.
- Coordinate with the Native American Heritage Commission and interested Tribes.
- A cultural resources inventory report will be prepared documenting the results of this research and draft will be given to DWR cultural resources staff for review. The final inventory report will be sent to DWR and the appropriate Information Center of the CHRIS.
- DWR will issue a written assessment and finding of effect on the resource if it is determined to be a historic resource.
- Recommendations for additional cultural resources investigations necessary to mitigate adverse impacts to recorded and/or undiscovered archaeological and/or cultural resources.
- In the event that the proposed maintenance activity or historical resource is located within federally managed lands, or requires federal approval, consultation with SHPO and compliance with the Archaeological Resource Protection Act (ARPA). The ARPA requires that a permit be obtained before excavation of an archaeological resource on such land can take place. The federal agency that owns or controls the land may dispense permits for excavation as provided in the ARPA regulations (43 CFR Section 7.5). The permit may require notice to affected Native American Tribes (43 CFR Section 7.7), and compliance with the terms and conditions provided in the ARPA regulations (43 CFR Section 7.9).

Additional cultural resources investigations may include testing and evaluation of archaeological resources. Investigations may also include further documentation of resources important to Native Americans.

If a historical resource is present that could be impacted by the Project, DWR will:

a) Determine if avoidance or preservation in place is feasible. Consistent with State CEQA Guidelines Section 15126.4(b)(3), this may be accomplished through creating exclusion zones, developing procedures and guidelines for maintenance activities in archaeologically sensitive areas, planning construction to avoid the resource; or capping and covering the resource. This would reduce impacts to less than significant.

b) If avoidance or preservation in place of an archaeological resource is not feasible and impacts will be significant, DWR will prepare and implement an Archaeological Research Design and Treatment Plan (ARDTP). The ARDTP will be prepared by a Secretary of the Interior–qualified archaeologist and will identify how the proposed data recovery program would preserve the significant information the archaeological resource is expected to contain. Treatment of unique archaeological resources will follow the applicable requirements of PRC Section 21083.2. Treatment for most resources would consist of, but would not be not limited to, sample excavation, artifact collection, site documentation, and historical research, with the aim to target the recovery of important scientific data contained in the portion(s) of the significant resource to be impacted by the Project. The ARDTP will include provisions for analysis of data in a regional context, reporting of results within a timely manner and subject to review and comments by DWR before being finalized, curation of artifacts and data at a curation facility that meets state standards, and dissemination of final confidential reports to

the appropriate Native American Tribes, the appropriate Information Center of the CHRIS, and DWR.

c) For archaeological sites that contain human remains, DWR will consult with the Most Likely Descendant, and determine appropriate protection and mitigation alternatives.

d) If avoidance or preservation in place is not feasible and the resource is both an archaeological resource and is important to Tribal cultural values, DWR will consult with interested Tribes to determine appropriate mitigation alternatives that will both mitigate the archaeological value and the Tribal cultural value of the site.

e) Public interpretation will also be considered as a mitigation measure, either web-based or physical as feasible based on public access. Public interpretation of cultural resources at their original site may occur in the form of a plaque, kiosk, or other method of describing the features' importance to the general public. Other forms of information dissemination may also be appropriate.

Once areas of maintenance activity have been cleared of archaeological and/or cultural resources, no additional analysis will be required under CEQA for Project maintenance activities. If archaeological or cultural resources are identified during archival review, survey, or consultation, these resources will be re-identified and their documentation updated to reflect the current status of physical integrity prior to future maintenance activities.

Mitigation Measure CUL-3: Halt Ground-Disturbing Maintenance Activities if Cultural Materials Are Discovered. If cultural materials are encountered during Project activities, all earth-moving activity within 100 feet of the find will cease until a qualified archaeologist can assess the nature and significance of the find. Work may continue elsewhere within the Project area while an appropriate course of action is determined in consultation with DWR.

d) **Less than Significant.**

Surficial evidence of paleontological resources is not typically visible where the ground has not been disturbed and formations exposed. The Project area is located in Holocene-age sediments that formed after the end of the last glacial maximum. Because of the nature maintenance activities, earth-disturbing activities would not extend past the Holocene alluvium into older geologic units to depths where paleontological resources are typically located. Therefore, there is limited possibility of the presence of paleontological resources and this is considered a less-than-significant impact.

Although not required, implementation of the following mitigation measure would further protect paleontological resources in the unlikely event of accidental discovery and disturbance during earth disturbing activities.

Mitigation Measure

Mitigation Measure CUL-4: Halt Ground-Disturbing Maintenance Activities if Paleontological Are Discovered. If paleontological resources are discovered during earth-moving activities, the following requirements will be followed:

- The maintenance crew will immediately cease work and DWR will be notified immediately if any paleontological resources (e.g., fossils) are uncovered during construction.

- All earth-moving activities must stop in within 100 feet of the find and a paleontologist will be retained to evaluate the resource and prepare a proposed mitigation plan in accordance with Society of Vertebrate Paleontology guidelines (1995).

e) **Less than Significant Impact with Mitigation.**

Results of the archival review, field survey, and Native American consultation discussed above indicate that the Project area and its vicinity have a low potential to contain buried cultural materials including human remains. Project activities are not anticipated to disturb any human remains, including those interred outside of formal cemeteries, but there is still the potential for an unexpected discovery. To avoid or reduce impacts to human remains, Mitigation Measure CUL-5 will be implemented.

Mitigation Measure

Measure CUL-5: Addressing the Discovery of Human Remains. If human remains are discovered, State Health and Safety Code Section 7050.5 states that further disturbances and activities will stop in any area or nearby area suspected to overlie remains, and the County Coroner will be contacted. Pursuant to the California PRC Section 5097.98, if the remains are thought to be Native American, the coroner will notify the Native American Heritage Commission, which will then notify the Most Likely Descendent (MLD). The MLD, together with DFM, will determine the appropriate, respectful treatment and disposition of the remains.

3.3.6 Geology, Soils, and Seismicity

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less-Than-Significant Impact*	*No Impact*
6. GEOLOGY, SOILS, AND SEISMICITY — Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to Division of Mines and Geology Special Publication 42.)	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☒	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☒	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒

Environmental Setting

Sutter County is part of the Great Valley geomorphic province, also known as the Central Valley of California. The Central Valley stretches approximately 500 miles in a generally northwest to southeast direction and averages approximately 40 miles in width between the Coast Ranges to the west and the Sierra Nevada Range to the east. The geology of the Great Valley is typified by thick sequences of alluvial sediments derived primarily from erosion of the mountains of the Sierra Nevada to the east and, to a lesser extent, erosion of the Klamath Mountains and Cascade Range to the north. These sediments were transported downstream and subsequently laid down as a river channel, floodplain deposits, and alluvial fans (Sutter County 2008).

No active earthquake faults are known to exist in Sutter County, although active faults in the region have been known to produce ground motion in the proposed Project area (Sutter County 2008). Although the County has felt ground shaking from earthquakes with epicenters located elsewhere, no major earthquakes or earthquake-related damage has been recorded within the County. Earthquakes of magnitude 5.0 or greater have occurred on regional fault systems, including the San Andreas. The Central Valley Blind-

Thrust Fault, approximately 15 miles west of Sutter County line was last recorded to produce a magnitude 6.5 earthquake in 1892. In 1900 and 1974, magnitude 4.0 earthquakes occurred with epicenters near Williams, approximately 30 miles west of the Project area. Potentially active faults do exist in Sutter County in the area of the Sutter Buttes, north of the Project area. However, these faults are small and have not exhibited activity in the last 200 years (Sutter County 2008).

Soil resources in the Project area consist of the Oswald-Gridley-Subaco 0 to 2 percent slope and are characterized by moderately deep and moderately to poorly drained soils with slow runoff and low erosion hazard (USDA 1988). The potential erodability of soil in the Project area is considered slight, since the topography is generally flat, with low annual precipitation (15 to 21 inches annually) and low wind velocity.

Liquefaction is the process where the soil is transformed to a fluid form during intense and prolonged ground shaking. Areas most prone to liquefaction are those that are water saturated and consist of relatively uniform sands that are loose to medium density. Granular layers underlying certain areas in the Sacramento Valley have higher relative densities and thus have moderate liquefaction potential. However, the soils in the proposed Project area do not have a large presence of sandy soils, which lowers the liquefaction potential.

Expansive soils are characterized by the ability to undergo significant volume change (shrink and swell) as a result of variation in soil moisture content. Soil moisture content can change as a result of many factors, including perched groundwater, landscape irrigation, rainfall, and utility leakage. The soils in the proposed Project area have a slight to moderate swell potential.

According to the Sutter County General Plan Background Report, Sutter County is not subject to high subsidence (Sutter County 2008).

Discussion

a) **Less than Significant Impact.** Priolo Earthquake Fault Zone, as defined by the California Department of Conservation, Geological Survey (CGS, formerly the Division of Mines and Geology), and no active or potentially active faults exist on, or in the immediate vicinity of, the site (Sutter County 2008). Therefore, the proposed Project would not expose people or structures to seismic risks. The potential for surface fault rupture, strong seismic ground shaking, and seismic-related ground failure including liquefaction would be less-than-significant. No mitigation is required.

b) **Less than Significant Impact.** Implementation of the proposed Project would involve ground-disturbing maintenance activities, including sediment, debris, and vegetation removal. As described, the soils within the proposed Project area have a slight erosion potential. Removing sediment, debris, and vegetation from the collecting canals would not result in the loss of top soil and any underlying top soil would have a low potential for erosion; therefore, this impact is less than significant. Disturbed areas could be exposed to erosion caused by wind or early-season rainfall events. Effects of wind erosion are evaluated in Chapter 3.3.3 Air Quality and water quality effects are evaluated in Chapter 3.3.9 Hydrology and Water Quality.

c, d) **Less than Significant Impact.** As described previously, the proposed Project area contains soils that are known to have slight liquefaction potential and slight to moderate shrink-swell potential. However, no new buildings or habitable structures would be constructed as part of the proposed Project. Therefore, there would be no impacts to life or property as a result of the proposed Project and this impact is less than significant.

e) **No Impact.** The proposed Project would not involve the generation of sewage or wastewater that would require on-site treatment, and no septic systems or alternative wastewater disposal systems would be necessary. There would be no impact.

3.3.7 Greenhouse Gas Emissions

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less-Than-Significant Impact*	*No Impact*
7. GREENHOUSE GAS EMISSIONS — Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

GHG Emissions Analysis

In May 2012, DWR adopted the DWR Climate Action Plan-Phase I: Greenhouse Gas Emissions Reduction Plan (GGERP), which details DWR's efforts to reduce its greenhouse gas (GHG) emissions, consistent with Executive Order S-3-05 and the Global Warming Solutions Act of 2006 (Assembly Bill [AB] 32). DWR also adopted the Initial Study/Negative Declaration prepared for the GGERP in accordance with the CEQA Guidelines review and public process. Both the GGERP and Initial Study/Negative Declaration are incorporated herein by reference and are available at: http://www.water.ca.gov/climatechange/CAP.cfm. The GGERP provides estimates of historical (back to 1990), current, and future GHG emissions related to operations, construction, maintenance, and business practices (e.g., building-related energy use). The GGERP specifies aggressive 2020 and 2050 emission reduction goals and identifies a list of GHG emissions reduction measures to achieve these goals.

DWR specifically prepared its GGERP as a "Plan for the Reduction of Greenhouse Gas Emissions" for purposes of CEQA Guidelines Section 15183.5. That section provides that such a document, which must meet certain specified requirements, "may be used in the cumulative impacts analysis of later projects." Because global climate change, by its very nature, is a global cumulative impact, an individual project's compliance with a qualifying GHG Reduction Plan may suffice to mitigate the project's incremental contribution to that cumulative impact to a level that is not "cumulatively considerable" (see CEQA Guidelines, Section 15064, (h)(3)).

More specifically, "[l]ater project-specific environmental documents may tier from and/or incorporate by reference" the "programmatic review" conducted for the GHG emissions reduction plan. "An environmental document that relies on a GHG reduction plan for a cumulative impacts analysis must identify those requirements specified in the plan that apply to the project, and, if those requirements are not otherwise binding and enforceable, incorporate those requirements as mitigation measures applicable to the project" (CEQA Guidelines Section 15183.5, (b)(2)).

Section 12 of the GGERP outlines the steps that each DWR project will take to demonstrate consistency with the GGERP. These steps include: (1) analysis of GHG emissions from maintenance activities of the proposed Project, (2) determination that the maintenance activity-related emissions from the Project do not exceed the levels of construction emissions analyzed in the GGERP, (3) incorporation into the design of the Project DWR's project-level GHG emissions reduction strategies, (4) determination that the Project does not conflict with DWR's ability to implement any of the "Specific Action" GHG emissions reduction

measures identified in the GGERP, and (5) determination that the Project would not add electricity demands to the State Water Project (SWP) system that could alter DWR's emissions reduction trajectory in such a way as to impede its ability to meet its emissions reduction goals.

Consistent with these requirements, a GGERP Consistency Determination Checklist is attached documenting that the Project has met each of the required elements (**Appendix F, GGERP Consistency Determination Checklist**).

Determination

As shown in Appendix F, based on the analysis provided in the GGERP and the demonstration that the proposed Project is consistent with the GGERP, DWR as the lead agency has determined that the proposed Project's incremental contribution to the cumulative impact of increasing atmospheric levels of GHGs is less than cumulatively considerable and, therefore, less than significant.

3.3.8 Hazards and Hazardous Materials

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less-Than-Significant Impact	No Impact
8. HAZARDS AND HAZARDOUS MATERIALS — Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☒	☐	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☒	☐	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☒	☐	☐
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☒	☐
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☒	☐
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☒	☐

Environmental Setting

The proposed Project area is within Sutter County and is near Yuba City. The nearest school is Faith Christian School, which is adjacent to the Project area, across George Washington Boulevard from the Live Oak Canal. Other schools close to the Project area include: Faith Christian Elementary School, approximately 0.35 miles to the east of the Project area; River Valley High School, approximately 0.50 miles to the east of the Project area; Tierra Buena Elementary School, and approximately 0.30 miles to the east of the Project area.

Hazardous Materials

Materials and waste may be considered hazardous if they are poisonous (toxicity), can be ignited by open flame (ignitability), corrode other materials (corrosivity), or react violently, explode, or generate vapors when mixed with water (reactivity). The term “hazardous material” is defined in law as any material that, because of quantity, concentration, or physical or chemical characteristics, poses a significant present or

potential hazard to human health and safety or to the environment.[2] In some cases past uses can result in spills or leaks of hazardous materials to the ground, resulting in soil and groundwater contamination. The use, storage, transportation, and disposal of hazardous materials are subject to numerous federal, State, and local laws and regulations.

Information about hazardous materials sites in the proposed Project area was collected by conducting a review of the California Environmental Protection Agency's Cortese List Data Resources (Cortese List) and the State Water Resources Control Board's GeoTracker list. The Cortese List includes data resources that provide information regarding the facilities or sites identified as meeting the Cortese List requirements. The Cortese List is updated at least annually, in compliance with California regulations (California Code Section 65964.6(a)(4)) and includes federal superfund sites, State response sites, non-operating hazardous waste sites, voluntary cleanup sites, and school cleanup sites. The GeoTracker list shows Underground Storage Tanks.

Based on a review of the Cortese List conducted in April 2015, three active listed sites are located within 0.5 mile of the proposed Project activities; however, none of the sites are located within the collecting canals or existing flood infrastructure that are part of the proposed Project (DTSC 2014). Of the three sites, Helena Chemical at 921 North George Washington Boulevard Yuba City, California 95993, is on a State response or national priorities list with potential contaminants of concern, including arsenic in the soil. Another site, John Taylor Fertilizers, at 900 North George Washington Boulevard Yuba City, California 95993, is a cleanup program site with potential contaminants of concern including 1,2,3 trichloropropane, fertilizers, and volatile organic compounds found in a drinking water well. The salvage yard at 3094 North Township Road Yuba City, California 95991, is listed as both an evaluation-site and a cleanup program site. Potential contaminants of concern in the soil include freon, other acid or corrosive, waste oil/motor oil/hydraulic/lubricating, and lead.

Fire Suppression

The proposed Project area is located within a Local Responsibility Area (LRA) where Sutter County or Yuba City are responsible for fire suppression. The California Department of Forestry and Fire Protection (CAL FIRE) (previously called the California Department of Forestry [CDF)) has determined that within the LRA, the proposed Project has mostly Unzoned Fire Hazard Severity Zone with small portions of Moderate Fire Hazard Severity Zone (CDF 2007).

Discussion

a) **Less than Significant with Mitigation Incorporated.** Project activities associated with the Project would require the use of limited amounts of commonly used materials, such as diesel, gasoline, solvents, hydraulic fluid, grease, and other compounds not considered acutely hazardous or hazardous when used in small quantities. Chemical treatments may be used to treat water primrose and other aquatic weeds as well as emergent and woody vegetation in advance of sediment removal. Herbicide treatments are applied using a tractor and trailer-mounted storage tank with a high-pressure pump or a truck-mounted spray system with a hose and reel for large, contiguous areas, while spot applications are made using a hand-held or backpack pump sprayer. As described in the

[2] State of California, Health and Safety Code, Chapter 6.95, Section 25501(o).

Project Description, all herbicides are applied according to label specifications and will be done by or under the supervision of a Qualified Certified Applicator. Pesticide applications would abide by the laws, requirements, and guidelines established by the California Department of Pesticide Regulation (CDPR) and under enforcement review of the county agriculture commissioners. A licensed Pest Control Advisor (PCA) will be available to provide written recommendations for all applications and will hold himself/herself as authority. All PCA recommendations will be followed as written. The types and quantities of materials to be used could pose a significant risk to the public and/or the environment. Implementation of Mitigation Measure HAZ-1, which includes development and implementation of a plan to safely store potentially hazardous materials away from waterways and sensitive receptors, and handle them according to local, State, and federal regulations, would reduce this potential impact to less than significant.

Mitigation Measure

Measure HAZ-1: Prepare and Implement Hazardous Materials Management Plan. Prior to construction, DWR will prepare a Hazardous Materials Management Plan that will be implemented to ensure that all staff transport, store, handle and dispose of construction-related hazardous materials in a manner consistent with the relevant local, State, and federal regulations and guidelines. At minimum, these include those recommended and enforced by the Department of Transportation, the Regional Water Quality Control Board, and the applicable local fire departments and environmental health departments. DWR will ensure that staff immediately control the source of any leak and immediately contain any spill using appropriate spill containment and countermeasures identified within the plan. If required by a city or county fire department, department of environmental health, or any other regulatory agency, containment media shall be collected and disposed of at an off-site facility approved to accept such media.

b) **Less than Significant with Mitigation Incorporated.** In addition to the use of hazardous materials, the proposed Project would result in maintenance activities that could expose or unearth soil or groundwater contamination. The regulatory agency database search conducted for the proposed Project identified three active listed sites that are located within 0.5 mile of the proposed Project activities; however, none of the sites are located within the collecting canals or existing flood infrastructure that are part of the proposed Project. Never the less, at least one of the sites includes contaminants in groundwater that may have migrated and could be uncovered or encountered during maintenance activities. There is also a potential that there could have been undocumented releases of hazardous materials (e.g., petroleum hydrocarbons from underground storage tanks) in the vicinity of the Project area that could have migrated and could be uncovered or encountered during sediment removal activities. Implementation of HAZ-2 would ensure that any previously unidentified hazardous materials encountered would be characterized and handled according to appropriate regulatory requirements and this impact would be reduced to a less-than-significant level. For impact discussions related to water quality, refer to Checklist item 3.3.9 Hydrology and Water Quality.

Mitigation Measure

Measure HAZ-2: Discovery of Unidentified Contamination Soil or Groundwater. If unidentified or suspected contaminated soil or groundwater is encountered during maintenance activities (including soil discoloration, noxious odors, debris, or buried storage containers), work shall be halted in the area of potential exposure, and the type and extent of contamination will be identified by a qualified Registered Environmental Assessor. Sampling and analysis of potential hazardous materials will be conducted and coordinated with the appropriate regulatory agencies, as appropriate. The required handling, storage and disposal methods will be conducted in accordance

with applicable laws. DWR will prepare a report that includes, but is not limited to, activities performed for the assessment, summary of anticipated contaminants and contaminant concentrations at the proposed construction site, and recommendations for appropriate handling of any contaminated materials during construction.

c) **Less than Significant with Mitigation Incorporated.** Hazardous materials such as fuels, oils, and other vehicle maintenance fluids would be on-site during implementation of the proposed Project's maintenance activities, creating the potential for a spill or accident to occur within 0.25 mile of an existing school. Hazardous materials could also be transported near and around the proposed Project area while materials are being hauled. However, Mitigation Measure HAZ-1 (Prepare and Implement Hazardous Materials Management Plan) requires a plan to be prepared that will ensure adherence to local, State, and federal laws and regulations which govern the transport, use, storage, handling and disposal of hazardous materials. Implementation of HAZ-1 would reduce the potential risk of exposure to hazardous materials within the vicinity of existing schools to a less-than-significant level.

d) **No Impact.** The Project is not located on a site included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 (Cortese List) and therefore would not create a significant hazard to the public or the environment from identified hazardous materials sites. Therefore, no impact would occur.

e, f) **Less than Significant Impact.** The nearest public airport is the Sutter County Airport, which is approximately 3.5 miles west of the proposed Project area. The nearest private airport facility is the Vandeford Ranch Company Airport, located within the proposed Project area, approximately 0.75 miles west of the nearest proposed maintenance activities. No structures would be erected within airport property or within 2 miles of a public or private use airport that would impede or impair airport operations. Therefore, implementation of the proposed Project would not result in any air safety hazards and this impact would be less than significant.

g) **Less than Significant Impact.** The proposed Project would result in small amounts of construction traffic (primarily transport of equipment) along roadways that may be used by emergency vehicles. However, given the relatively low traffic volumes and similarity to existing traffic patterns and vehicle use, alternative routes are anticipated to be readily available. This impact would be less than significant.

h) **Less than Significant Impact**. Project activities that involve heavy diesel equipment that could spark a fire would be located in an area where the risk of wildland fire is considered to be moderate; however, the Project activities would occur within the collecting canals and existing flood infrastructure where riparian vegetation is present and adjacent lands are irrigated agriculture. The vegetation and land use types have a low potential for wildland fires.

Prescribed burning is proposed, which involves using controlled fire to remove both vegetation and organic matter from the ground surface. The amount and type of equipment used for prescribed burns may vary in relation to the size of the area to be burned and conditions on and near the burn site. Burning would be used only to eliminate vegetation trimmings (i.e., woody or herbaceous vegetation trimmed or removed to provide equipment access to the canal), or piled vegetation and organic debris removed from the canals. A burn operation may involve the use of torches, trucks,

hoses, pumps, maintenance yard crews to monitor the burn, and a water supply tank truck. Water tanks mounted on flatbed trucks, with appropriate hoses and pumps, are used to control the intensity and range of the burn. A pickup truck is used to haul torch fuel and other supplies. In addition, prescribed burning would be conducted in coordination with the local fire district and the local air quality management district, and in accordance with all laws and local ordinances, including those designed to ensure that burns are conducted only during safe weather conditions (e.g., typically, burning is not conducted during windy conditions). Prescribed burns generally are conducted only in rural areas in summer (June through October) in coordination with the agencies listed above. Any flammable structures in or next to the burn area are chemically fire guarded or soaked with water before the start of burning and then are monitored throughout the burn operation. Furthermore, wet lines (firebreaks) are placed at the levee toe to prevent the fire from spreading to adjoining areas, to the extent practical. All fires, including smoldering debris, are entirely extinguished before the crew leaves the burn site.

Given the nature of proposed maintenance activities and regulation of prescribed burns, the proposed Project is not expected to expose people or structures to a significant risk of loss, injury, or death involving wildland fires. DWR will continue to obtain burn permits where necessary. This impact would be less than significant.

3.3.9 Hydrology and Water Quality

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less-than-Significant Impact*	*No Impact*
9. HYDROLOGY AND WATER QUALITY — Would the project:				
a) Violate any water quality standards or waste discharge requirements?	☐	☒	☐	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	☒
c) Substantially alter the existing drainage pattern of a site or area through the alteration of the course of a stream or river, or by other means, in a manner that would result in substantial erosion or siltation on- or off-site?	☐	☐	☒	☐
d) Substantially alter the existing drainage pattern of a site or area through the alteration of the course of a stream or river, or by other means, substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?	☐	☐	☒	☐
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☐	☒
f) Otherwise substantially degrade water quality?	☐	☒	☐	☐
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	☐	☐	☐	☒
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☒	☐
j) Expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

Environmental Setting

The Sacramento River is California's longest river, flowing from Mt. Shasta to the confluence with the San Joaquin River at the Sacramento-San Joaquin Delta. Feather River is the primary tributary to the Sacramento River. The Sutter Bypass is a floodwater bypass that diverts excess water from the Sacramento River between two large levees (Figure 1). It also provides for local drainage for the Sutter/Butte Creek Basin. The communities of Yuba City, Sutter, and Live Oak all drain to the collecting canals.

The proposed Project lies entirely within the Sacramento River watershed, which includes the Feather and Bear Rivers. The Sutter Bypass is a major manmade flood control area that acts as an overflow collector of

flood flows in the Sacramento River after passing through the Butte Slough and the Butte Sink. The Sutter Bypass starts north of Pass Road, westerly of the Sutter Buttes generally in a south-southeast orientation for about 27 miles until it intercepts the Feather River about 3 miles downriver from the rural community of Nicolaus (Sutter County 2008).

The Sacramento River is the largest river (in terms of volume of water and length) in the State and drains approximately 27,210 square miles of watershed, including Sutter County. It forms a major portion of the western county boundary as it enters from Colusa County and extends south down to the Sacramento County boundary. The river supports various beneficial uses, including recreational, agricultural, and wildlife. The river is not used for municipal or domestic water supplies in Sutter County. Water quality in the Sacramento River is generally of good quality and is treated and used for municipal and industrial water supplies up and downstream of Sutter County. The State Water Resources Control Board (SWRCB) publishes updates to the *Water Quality Control Plan (Basin Plan) for the Sacramento River and San Joaquin River Basins* to improve water quality and maintain beneficial uses in the Sacramento and San Joaquin Rivers. The Basin Plan describes water quality concerns for the Sacramento River that include agriculture, forestry, urban land uses, and stormwater runoff. Further, the Sacramento River is listed in the SWRCB's Total Maximum Daily Load (TMDL) program for mercury and unknown toxicity. The SWRCB TMDL programs are implemented pursuant to Clean Water Act Section 303(d) for impaired waterbodies. TMDL programs are plans that describe how an impaired waterbody will meet federal water quality standards (Sutter County 2008).

Sutter County is located within the greater Sacramento Valley Groundwater Basin. Specifically, the proposed Project is located within the Sutter Subbasin. Major surface water sources described above are major sources of groundwater recharge to the groundwater subbasins within Sutter County. Other sources of groundwater recharge in the proposed Project area are from percolation of rainfall, agricultural irrigation, and subsurface inflow from adjacent groundwater basins. Pumping of groundwater and subsurface outflow to rivers and adjoining subbasins result in a groundwater discharge from Sutter County. The groundwater-level trends are reported to be stable within Sutter County and tend to be within about 10 feet below the ground surface (Sutter County 2008).

Similar to mediterranean climates, Sutter County's climate is generally characterized by hot, dry summers, with relatively moderate, wet winters. Precipitation rates are greatest during late fall to early spring followed by the dry season from later spring to early fall. Because there are no significant water storage reservoirs in Sutter County, rainfall percolates into the soil, runs off into local streams and rivers, and evaporates. By late summer, most small creeks and streams are generally dry and the rivers are at their lowest levels. Some small creeks have water during the dry season as a result of agricultural irrigation and drainage and/or from drainage in upstream urban areas (Sutter County 2008).

Discussion

a, f) **Less than Significant Impact with Mitigation.** Exposed slopes and graded contours created during maintenance activities could be subject to rain events that could result in increased rates of erosion and temporary discharges of sediment and other contaminants in stormwater runoff to surrounding receiving waters. Even though soils within the Project are characterized as having a low erosion potential, sediments and other pollutants could result in degradation of receiving water quality in the Sacramento River and downstream creeks at levels above applicable water quality standards. Implementation of Mitigation Measure HYD-1, below, would reduce this impact to a less-than-

significant level by reducing the potential release of water quality pollutants to receiving waters through implementation of BMPs and compliance with applicable permit and TMDL requirements protecting receiving water quality.

Mitigation Measure

Measure HYD-1: Prepare and Implement appropriate BMPs. Prior to conducting O&M activities, when appropriate and required based on site conditions and activities being conducted, DWR will install appropriate BMPs. BMPs will include, but are not limited to, one or more of the following standard practices, or equally effective measures, that are commonly used during the maintenance activities and post-maintenance activities and will be in compliance with any permits and TMDL requirements to protect receiving water quality. All BMPs will be monitored for effectiveness and maintained by DWR.

- Conduct environmental awareness training to train DWR maintenance staff on the proper use of BMPs and applicable permit requirements to protect receiving water quality.
- Schedule non-emergency soil disturbing activities adjacent to stream channels and wetlands during the dry season to minimize sediment loading to the maximum extent practical.
- Install erosion control measures, such as use of straw bales, silt fences, fiber rolls, or equally effective measures, at maintenance activity locations adjacent to stream channels, drainage canals and wetlands.
- Install turbidity curtains or similar methods during in channel work to control silts and sediments.
- Minimize ground and vegetation disturbance during proposed Project maintenance activities by establishing designated equipment staging areas, spoils and soil stockpile areas, and equipment exclusion zones prior to the commencement of any maintenance activity.
- Use and store hazardous materials, such as vehicle fuels and lubricants, in designated staging areas located away from surface waters according to local, State, and federal regulations as applicable.
- Maintenance vehicles and equipment will be checked daily for leaks and will be properly maintained to prevent contamination of soil or water from external grease and oil or from leaking hydraulic fluid, fuel, oil, and grease.
- Methods and materials used for herbicide and pesticide application will be in accordance with label directions, DWR's most current guidelines on herbicide and pesticide use, and with laws and regulations administered by the Department of Pesticide Regulation.

b) **No Impact.** The proposed Project would not alter hydrology or groundwater recharge such that the groundwater table would be altered. There would be no additional impervious surfaces created as part of the proposed Project that would reduce surface area capable of percolation. Therefore, no impact would occur.

c, d) **Less than Significant Impact.** The proposed Project would not alter the existing drainage pattern of the area, which is the stormwater runoff/flood flows that run through the existing collecting canals. Restoration of the collecting canal's capacity, through the removal of sediment, debris, and vegetation, would better accommodate runoff and minimize flood potential. As described previously, the proposed Project would not result in substantial erosion or siltation on- or off-site

post-maintenance. By restoring the collecting canal's capacity, drainage would be more thoroughly contained by the collecting canals. Therefore, this impact would be less than significant.

e) **No Impact.** The proposed Project activities in the collecting canals and existing flood infrastructure would not increase the amount of impervious surface and would not increase the amount or rate of runoff. In addition, maintenance activities would actually better accommodate runoff and minimize flood potential. Therefore, there would be no impact.

g, h) **No Impact.** There would be no housing constructed as part of the proposed Project, nor would there be a change in the 100-year flood hazard area or impediment of flows. Therefore, no impact would occur.

i) **Less than Significant Impact.** The proposed Project would enhance flood capacity in the collecting canals and would as a result allow the system to function as intended to reduce the risk of flooding and infrastructure failures and provide sufficient capacity for irrigation drainage. Furthermore, as described in checklist items g and h, the proposed Project would not place any new structures in a flood hazard zone. Therefore, no persons or structures would be exposed to a significant risk associated with flooding due to levee failure or dam inundation, and thus this impact is less than significant.

j) **No Impact.** The proposed Project would enhance flood capacity in the existing creek channel and would, as a result, allow the system to function as intended to reduce the risk flooding and infrastructure failures. Furthermore, as described in checklist items g and h, the proposed Project would not place any new structures in a flood hazard zone. Therefore, no persons or structures would be exposed to a significant risk associated with inundation by a seiche, tsunami, or mudflow and no impact would occur.

3.3.10 Land Use and Land Use Planning

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less-Than-Significant Impact*	*No Impact*
10. LAND USE AND LAND USE PLANNING — Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

Environmental Setting

The majority of the proposed Project lies within unincorporated Sutter County. Land use character in this area primarily consists of scattered residences along rural county roads and agriculture. Yuba City is the major urban center within the county and is located in the northeastern portion of the proposed Project area, where Highway 99 and State Route 20 intersect. One of the collecting channels passes through western Yuba City.

According to the 2011 Sutter County General Plan, the proposed Project area within unincorporated Sutter County is designated as primarily agriculture zone. The levees along the Sutter Bypass are designated as public and small areas of open space designation also exist within the proposed Project area (Sutter County 2011). The portion of the proposed Project that lies within Yuba City primarily consists of land designated as low-density residential. Other designations present in smaller amounts are medium-/low-density residential, neighborhood commercial, regional commercial, and the business, technology, and warehousing designation (Yuba City 2004).

Discussion

a) **No Impact.** The proposed Project would restore collecting canal capacity and provide maintenance to existing flood infrastructure. Maintenance activities would not include construction of any buildings, structures, walls, or other features that would create a new physical barrier (division) between any existing communities, or restrict access to any community. Although some temporary maintenance -related traffic disturbances affecting road access could occur, given the relatively low traffic volumes and similarity to existing traffic patterns and vehicle use, alternative routes are anticipated to be readily available and Project-related activities would not restrict access to any community, even temporarily. Therefore, the proposed Project activities would not physically divide an established community, and thus no impact would occur.

b) **No Impact.** Private properties in the vicinity of the proposed Project area are on land currently designated by Sutter County as agriculture and designated by Yuba City as low-density residential and medium-/low-density residential. Proposed Project activities would be limited to the existing collecting canal capacity and provide maintenance to existing flood infrastructure, and although

staging and vehicle movement would occur, these activities would be temporary and would not conflict with existing land use. Some sediment spoils could be piled on adjacent private lands and access roads; however, once dry they would be spread and the ground returned to existing grade. There would be no conversion of existing land uses and the proposed Project would not result in conflict with local or State regulations. No impact would occur.

c) **No Impact.** As discussed previously, some regional habitat conservation plans that cover much of the same area as the Project are in development, but none are currently adopted. These plans include the Yuba Sutter Resource Conservation Plan and the FRRPP HCP. The Yuba Sutter Resource Conservation Plan is also in the early stages of development. The FRRPP HCP is being prepared by DWR and planning for that effort is closely coordinated with the Project because the two cover much of the same area and have consistent flood management objectives.

In summary, the Project area does not include any areas that are within the planning purview of an adopted habitat conservation plan, though, as discussed above, DWR has taken care to maintain consistency between the Project and the FRRPP HCP. Therefore, the Project does not conflict with any adopted habitat conservation plan or natural community conservation plan or any other approved local, regional, or State habitat conservation plan. There are no applicable habitat conservation plans or natural community conservation plans in the Project area; therefore, the proposed Project would not conflict with the provisions of any adopted habitat conservation plan or natural community conservation plan. No impact would occur.

3.3.11 Mineral Resources

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less-Than-Significant Impact*	*No Impact*
11. MINERAL RESOURCES — Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

Environmental Setting

The Sutter County Surface Mining Code and the Zoning Code provide for the extraction of mineral resources from unincorporated lands. The extraction of mineral resources in Sutter County has historically been limited to the extraction of clay, sand, soils, and rock. There are currently three active mining operations within the county. All of the mines in the county are open-pit mines. There are no deep-shaft mine activities currently.

Of the three active mining operations in the county, two are in the vicinity of the Sutter Buttes (South Butte Quarry and Bihlman Pit/Butte Rock), while the third (Reclamation District 1001) is in the southeast portion of the county south of the community of Trowbridge. None of the active mining operations in the county are within the proposed Project area.

Discussion

a, b) **No Impact.** The proposed Project would not involve excavation of, or impede the recovery of, a known mineral resource within the Project area. The proposed Project would restore collecting canal capacity and provide maintenance to existing flood infrastructure, which are not located on a feasible mineral recovery site; therefore, there is no availability of mineral resources in the proposed Project footprint and no existing mineral resource recovery sites in the proposed Project area. No impact would occur.

3.3.12 Noise

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less-Than-Significant Impact*	*No Impact*
12. NOISE — Would the project:				
a) Result in Exposure of persons to, or generation of, noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b) Result in Exposure of persons to, or generation of, excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c) Result in A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☒
d) Result in A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☒	☐	☐
e) For a project located within an airport land use plan area, or, where such a plan has not been adopted, in an area within two miles of a public airport or public use airport, would the project expose people residing or working in the area to excessive noise levels?	☐	☐	☐	☒
f) For a project located in the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Environmental Setting

Noise can be generally defined as unwanted sound. Sound is defined as any pressure variation in air that the human ear can detect. Sound, traveling in the form of waves from a source, exerts a sound pressure level (referred to as sound level), which is measured in decibels (dB), with zero dB corresponding roughly to the threshold of human hearing and 120 to 140 dB corresponding to the threshold of pain. Sound pressure fluctuations can be measured in units of hertz (Hz), which correspond to the frequency of a particular sound. Typically, sound does not consist of a single frequency, but rather a broad band of frequencies varying in levels of magnitude (sound power). The sound pressure level, therefore, constitutes the additive force exerted by a sound corresponding to the frequency/sound power level spectrum.

The typical human ear is not equally sensitive to all frequencies of the audible sound spectrum. As a consequence, when assessing potential noise impacts, sound is measured using an electronic filter that de-emphasizes the frequencies below 1,000 Hz and above 5,000 Hz in a manner corresponding to the human ear's decreased sensitivity to low and extremely high frequencies instead of the frequency mid-range. This method of frequency weighting is referred to as A-weighting and is expressed in units of A-weighted decibels (dBA). Frequency A-weighting follows an international standard methodology of frequency de-emphasis and is typically applied to community noise measurements. For this reason, the A-weighted sound level has become the standard tool of environmental noise assessment.

The effects of noise on people can be placed into three categories:

- Subjective effects of annoyance, nuisance, dissatisfaction

- Interference with activities such as speech, sleep, learning
- Physiological effects such as hearing loss or sudden startling

Environmental noise typically produces effects in the first two categories. Workers in industrial plants generally experience noise in the last category. There is no completely satisfactory way to measure the subjective effects of noise, or the corresponding reactions of annoyance and dissatisfaction. A wide variation exists in the individual thresholds of annoyance, and different tolerances to noise tend to develop based on an individual's past experiences with noise.

Stationary "point" sources of noise, including stationary mobile sources such as idling vehicles, attenuate (lessen) at a rate of 6 dBA to 7.5 dBA per doubling of distance from the source, depending upon environmental conditions (i.e., atmospheric conditions and noise barriers, either vegetative or manufactured, etc.). Widely distributed noises, such as a large industrial facility spread over many acres or a street with moving vehicles (a "line" source), would typically attenuate at a lower rate, approximately 3 to 4.5 dBA per doubling distance from the source (also dependent upon environmental conditions) (Caltrans 1998).

Community noise is commonly described in terms of the "ambient" noise level, which is defined as the all-encompassing noise level associated with a given noise environment. A common statistical tool to measure the ambient noise level is the average, or equivalent, sound level (L_{eq}) over a given time period (usually one hour). The Day-Night Average Level (L_{dn}) is based upon the average noise level over a 24-hour day, with an additional 10 decibel weighing applied to noise occurring during nighttime (10:00 p.m. to 7:00 a.m.) hours. The nighttime penalty is based upon the assumption that people react to nighttime noise exposures as though they were twice as loud as daytime exposures.

Pursuant to the Sutter County General Plan, maximum allowable transportation-related and non-transportation (stationary) noise levels for new residential land uses (low density residential, duplex, mobile homes) is 60 dBA L_{dn}/CNEL and 55 dBA L_{eq}/70 dBA L_{max} during the daytime hours (7:00 a.m. – 10:00 p.m.), respectively (Sutter County 2011). To address future noise from construction activities the Sutter County General Plan includes policy N 1.6 that require discretionary projects to limit noise-generating construction activities within 1,000 feet of noise-sensitive uses (i.e., residential uses, daycares, schools, convalescent homes, and medical care facilities) to daytime hours between 7:00 a.m. and 6:00 p.m. on weekdays, 8:00 a.m. and 5:00 p.m. on Saturdays, and prohibit construction on Sundays and holidays unless permission has been granted by the County.

The proposed Project would consist of sediment removal from collection canals, debris removal, bridge maintenance, repair and replacement, and culvert repair, replacement, and removal. The area surrounding the proposed Project is characterized by rural roadways and agricultural noise. These include low-volume traffic noise from tractors, large trucks, and other farm equipment, both on and off-road passenger vehicles. There are existing residential receptors located near the proposed Project site. The nearest existing residential receptors from where sediment removal and bridge maintenance, repair, and replacement would occur are approximately 350 and 2,800 feet away, respectively. Debris removal and culvert repair, replacement and removal would be conducted on an as-needed basis, which makes their precise locations relative to off-site residential receptors unknown. It was assumed that these maintenance activities would occur within 350 feet from an existing residential receptor.

Vibration Setting

Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. As described in the Federal Transit Administration's (FTA's) *Transit Noise and Vibration Impact Assessment* (2006), ground-borne vibration can be a serious concern for nearby neighbors of a transit system route or maintenance facility, causing buildings to shake and rumbling sounds to be heard. In contrast to airborne noise, ground-borne vibration is not a common environmental problem. It is unusual for vibration from sources such as buses and trucks to be perceptible, even in locations close to major roads. Some common sources of ground-borne vibration are trains, buses on rough roads, and construction activities such as blasting, pile driving, and operating heavy earth-moving equipment.

There are several different methods that are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to describe vibration impacts to buildings. The root mean square (RMS) amplitude is most frequently used to describe the effect of vibration on the human body. The RMS amplitude is defined as the average of the squared amplitude of the signal. Typically, ground-borne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration. Sensitive receptors for vibration include structures (especially older masonry structures), people (especially residents, the elderly and sick), and vibration-sensitive equipment.

The effects of ground-borne vibration include movement of the building floors, rattling of windows, shaking of items on shelves or hanging on walls, and rumbling sounds. In extreme cases, the vibration can cause damage to buildings. Building damage is not a factor for most projects, with the occasional exception of blasting and pile-driving during construction. Annoyance from vibration often occurs when the vibration levels exceed the threshold of perception by only a small margin. A vibration level that causes annoyance will be well below the damage threshold for normal buildings. The FTA thresholds of architectural damage for conventional sensitive structures and human annoyance is 0.2 inches per second PPV and 80 VdB, respectively (FTA 2006).

Discussion

a) **Less than Significant Impact.** Short-term maintenance -source noise would include vegetation removal, sediment excavation, debris removal, bridge and culvert repair, and material transport. On-site construction equipment used for maintenance activities would include excavators, backhoes, and tractors. Representative noise levels for individual equipment are shown in **Table 6**.

TABLE 6.
TYPICAL NOISE LEVELS FROM CONSTRUCTION EQUIPMENT OPERATIONS

Construction Equipment	Noise Exposure Level, dBA L_{eq} @ 50 Feet	Noise Exposure Level, dBA L_{max} @ 50 Feet
Excavator	81	85
Backhoe	76	80
Tractor	80	84

SOURCES: FHWA Roadway Construction Noise Model User's Guide, January 2006.

As previously discussed, the nearest existing residential receptors to where sediment removal and bridge maintenance, repair, and replacement would occur are approximately 350 and 2,800 feet away, respectively. Since debris removal along the canal and culvert repair, replacement, and removal would be conducted on an as-needed basis and their locations are currently unknown, the distance between these activities to the nearest residential receptor are assumed to be 350 feet. Noise from maintenance activities generally attenuates at a rate of 6 to 7.5 dBA per doubling of distance. **Table 7** shows the approximate noise levels from project-related maintenance activities along the canals at the nearest residential receptor. Assuming an attenuation rate of 7.5 dBA per doubling of distance, the closest residential receptor to culvert repair, replacement, and removal activities would be exposed to an exterior noise level of approximately 63 dBA L_{eq} and 65 dBA L_{max}. The Sutter County General Plan Noise Element does not establish standards that address maintenance-related noise, but directs the County to develop a noise ordinance to establish such standards; this ordinance has not yet been developed to date. Consequently, construction noise generated by culvert maintenance, repair, and removal activities would not result in exposure of persons to, or generation of, noise levels in excess of standards established in the local General Plan or noise ordinance. Therefore, the impact is less than significant.

TABLE 7.
MAINTENANCE ACTIVITY NOISE LEVELS AT EXISTING RESIDENTIAL RECEPTORS

Maintenance Activity	Distance to the Nearest Residential Receptor (feet)	Noise Level L_{eq}/L_{max} dBA
Sediment Removal	350	60/64
Debris Removal	350	63/65
Bridge Maintenance, repair and replacement	2,800	32/36
Culvert repair, replacement and removal	350	63/65

SOURCE: ESA 2015

b) **Less than Significant Impact.** The proposed Project's maintenance activities have the potential to result in varying degrees of temporary ground-borne vibration, depending on the specific construction equipment used and activities involved. The proposed Project would not use any construction equipment that would generate significant ground-borne vibration such as impact pile driver or blasting. The construction equipment that would generate the highest vibration levels during sediment removal and culvert maintenance would be loading trucks, which can generate vibrations levels as high as 0.076 inches per second PPV (or 86 VdB) from a distance of 25 feet. The closest residential receptor to where canal sediment removal or culvert maintenance is 350 and 200 feet, respectively. At this distance, vibration levels would be approximately 0.001 inches per second PPV (or 52 VdB) and 0.003 inches per second PPV (or 59 VdB), respectively. The proposed Project would not result in significant building vibration (exceeding 0.2 PPV) or human annoyance (exceeding 80 Vdb) at the nearest receptors. Therefore, the impact is less than significant.

c) **No Impact.** The proposed Project would not result in long-term operations. Therefore, there would be no substantial permanent increase in ambient noise levels and there would be no impact.

d) **Less than Significant Impact with Mitigation.** As discussed in impact item a and shown in Table 7, temporary on-site maintenance operations would expose existing residential land uses to

noise levels of 63 dBA L_{eq} and 65 dBA L_{max} during culvert repair, replacement, and removal activities. These noise levels could potentially result in a temporary substantial noise increase at the closest residential receptor. However, according the Sutter County General Plan policy N 1.6, maintenance-related noise is exempt from the County's noise standards providing that they occur during clearly defined weekday daytime hours and that maintenance activities do not occur over excessively long periods of time. DWR will conduct work as described by the Sutter County General Plan standard. Therefore, this noise impact is exempt. Furthermore, Measure NOISE-1, ensures impacts are less than significant.

Mitigation Measure

Measure NOISE-1: Reduce Noise Levels during Maintenance Activities DWR will implement the following noise reduction controls:

- Maintenance activities will be limited to the daytime hours between 7:00 a.m. and 6:00 p.m. on weekdays and between 8:00 a.m. and 5:00 p.m. on Saturdays in areas within 500 feet of residential receptors;
- Equipment and trucks used for Project maintenance activities will be properly maintained and equipped with all feasible noise control, such as mufflers, in accordance with manufacturers' specifications.

e, f) **No Impact.** The proposed Project area is not within an airport land use plan or within 2 miles of a public airport, or within the vicinity of a private airstrip. There would be no exposure to excessive noise levels from aircraft; therefore, no impact would occur.

3.3.13 Population and Housing

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less-Than-Significant Impact*	*No Impact*
13. POPULATION AND HOUSING — Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing housing units, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Environmental Setting

Population

The nearest cities to the proposed Project are the cities of Yuba City, Sutter, and Live Oak. The proposed Project runs through a portion of Yuba City, which had a population of 64,925 people in 2010 (U.S. Census Bureau 2010).

Housing

Housing types near the proposed Project area include rural ranch houses and single family houses.

Discussion

a) **No Impact.** No new homes, businesses, road extensions, or other infrastructure for development are proposed as part of the proposed Project. The proposed Project would restore collecting canal capacity and provide maintenance to existing flood infrastructure. The proposed Project would employ existing DWR staff and therefore would not induce population growth in the area and would not affect nearby cities or towns. Therefore, no impact would occur.

b, c) **No Impact.** The proposed Project would be limited to collecting canals and existing flood infrastructure and would not require new land easements. Therefore, it would not displace any existing housing, or generate additional demand for housing within the surrounding counties. In addition, it would not displace or increase the number of residents or permanent workers. No impact would occur.

3.3.14 Public Services

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less-Than-Significant Impact*	*No Impact*
14. PUBLIC SERVICES — Would the project:				
a) Result in substantial adverse physical impacts associated with the provision of, or the need for, new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:				
i) Fire protection?	☐	☐	☐	☒
ii) Police protection?	☐	☐	☐	☒
iii) Schools?	☐	☐	☐	☒
iv) Parks?	☐	☐	☐	☒
v) Other public facilities?	☐	☐	☐	☒

Environmental Setting

Fire Protective Services

Fire protection and emergency services are provided by four County Service Areas (CSAs) and two independent Fire Protection Districts. The 4 CSAs are governed by the County Board of Supervisors and directed by the Fire Chief. The proposed Project area lies within two of the CSAs, CSA-F and CSA-G. The fire districts in Sutter County are also equipped to provide medical aid at the basic life support level with the ability to perform emergency cardiac shock (defibrillation).

CSA-F includes three stations: Live Oak Fire Station, Sutter Fire Station, and Oswald-Tudor Fire Station. The Service Area covers rural and urban areas in the northern portion of the county and south of Yuba City. Each station is staffed with three lieutenants, one fire apparatus engineer, and approximately 12 volunteer firefighters. Four seasonal firefighters are hired during “fire season” and shared between the three CSA-F stations. Seasonal firefighters are hired to augment the Career Staff during “fire season,” when the number of calls for service typically increases.

In 2001, the Walton Fire Protection District merged with the Yuba City Fire Department to form the CSA-G, which now encompasses Yuba City and the protection areas surrounding the city beyond the sphere of influence boundaries. The merged CSA-G serves a combined city/county service area of approximately 30 square miles and 66,000 residents. CSA-G is operated by the Yuba City Fire Department. Yuba City Fire Department personnel are dispatched by the Yuba City Police Department. Yuba City stations include the Clark Avenue Station Number 1, Gray Avenue Station Number 2, and the Lincoln Road Station Number 3. In addition, the Yuba City Fire Department took over responsibility for Fire Station Number 4 (211 S. Walton Avenue) and Number 7 (2855 Butte House Road) that had previously serviced the unincorporated areas around Yuba City.

Law Enforcement Services

The Sutter County Sheriff's Department has the responsibility for providing law enforcement services to unincorporated areas of Sutter County. The California Highway Patrol (CHP) provides traffic enforcement on all highways and roadways in the unincorporated area. Additional law enforcement services are provided to the county through the District Attorney's office. Yuba City Police Department provides all law enforcement services in the incorporated Yuba City. As of January 1, 2008, the Department has 51 sworn deputies, 47 sworn correctional officers, and 33 civilian staff.

The CHP has one office in Yuba City, which serves Sutter and Yuba Counties, as well as portions of Butte, Plumas, and Sierra Counties. The office is staffed with 29 officers, 4 sergeants, and 1 captain who assist with law enforcement, traffic control, accident investigation, and hazardous spills. The CHP has a mutual aid agreement with the Sutter County Sheriff's Department to respond with backup units as needed. All dispatch calls are routed through the Chico CHP dispatch center.

Yuba City is currently divided into four primary patrol areas or beats patrolled by 36 police officers. Supervisory officers, crime scene investigators, and traffic enforcement patrols have full city coverage. The Yuba City Police Department is supervised by the police captain with the support of three lieutenants and five sergeants.

Schools and Libraries

The nearest school is Faith Christian High School, which is adjacent to the Project area. Other schools close to the Project area include: Faith Christian Elementary School, approximately 0.35 miles to the east of the Project area; River Valley High School, approximately 0.5 miles to the east of the Project area; Tierra Buena Elementary School, approximately 0.3 miles to the east of the Project area. All other schools are located over a mile away from the proposed Project area. The nearest library is the Sutter County Main Branch Library, 2.5 miles to the east.

Discussion

a.i-v) **No Impact.** As described under Section 3.3.13, the proposed Project would not result in the construction of any new facilities or population that would generate a need for new or physically altered government facilities.

Also described previously, the proposed Project would involve prescribed burns of removed vegetation. Prescribed burning involves using controlled fire to remove both vegetation and organic matter from the ground surface. The amount and type of equipment used for prescribed burns may vary in relation to the size of the area to be burned and conditions on and near the burn site. A burn operation may involve the use of torches, trucks, hoses, pumps, maintenance yard crews to monitor the burn, and a water supply tank truck. Water tanks mounted on flatbed trucks, with appropriate hoses and pumps, are used to control the intensity and range of the burn. A pickup truck is used to haul torch fuel and other supplies. In addition, prescribed burning would be conducted in coordination with the local fire district and the local air quality management district, and in accordance with all laws and local ordinances, including those designed to ensure that burns are conducted only during safe weather conditions (e.g., typically, burning is not conducted during windy conditions). Prescribed burns generally are conducted only in rural areas in summer (June through October) in coordination with the agencies listed above. Any flammable structures in or next

to the burn area are chemically fire-guarded or soaked with water before the start of burning and then are monitored throughout the burn operation. Furthermore, wet lines (firebreaks) are placed at the levee toe to prevent the fire from spreading to adjoining areas, to the extent practical. All fires, including smoldering debris, are entirely extinguished before the crew leaves the burn site.

Given the nature of proposed maintenance activities and regulation of prescribed burns, the proposed Project is not expected to expose people or structures to a significant risk of loss, injury, or death involving wildland fires. Additionally, the prescribed burns would be managed in a way that would not impact fire suppression response time or staffing levels. Therefore, there would be no change in the demand for police and fire protection and community amenities such as schools and parks or that which currently exists and no impact would occur.

3.3.15 Recreation

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less-Than-Significant Impact*	*No Impact*
15. RECREATION — Would the project:				
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated?	☐	☐	☐	☒
b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☐	☒

Environmental Setting

As described in Section 2.0, *Project Description*, the maintenance program occurs along Sutter Bypass SRFCP canals and facilities. These facilities route the excess surface water into the Sutter Bypass. The proposed Project lies adjacent to the Sutter Bypass Wildlife Area. The Wildlife area sits atop the levees bordering the Sutter Bypass. In addition, the Sutter National Wildlife Refuge is located within the Sutter Bypass, which is adjacent to the proposed Project. The Wildlife Area allows for fishing, wildlife viewing, and hunting. No facilities are present.

Discussion

a, b) **No Impact.** There are no federal, State, regional or other parks within the proposed Project area, although the Sutter Bypass National Wildlife Area is adjacent. As described in subsection 3.3.13, *Population and Housing*, the proposed Project would not result in the construction of any new facilities or population; therefore, there would be no increased use of parks or recreational facilities over that which currently occurs. The proposed Project would not affect the fishing, wildlife viewing, and hunting opportunities of the Wildlife Area. In addition, there would be no recreational facility expansion or construction as a result of the proposed Project. Therefore, no impact would occur.

3.3.16 Transportation and Traffic

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less-Than-Significant Impact*	*No Impact*
16. TRANSPORTATION AND TRAFFIC — Would the project:				
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☒	☐	☐
b) Conflict with an applicable congestion management program, including, but not limited to, level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☒	☐	☐
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location, that results in substantial safety risks?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
e) Result in inadequate emergency access?	☐	☒	☐	☐
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☒	☐	☐

Environmental Setting

Highways

The proposed Project occurs about 1.5 miles east of State Route 99 and crosses underneath State Route 20 in Sutter County.

County Roadways/Traffic Types

Traffic patterns along county-owned and local roads are related to remote residential and agricultural land uses. Roads within and adjacent to the proposed Project area are primarily rural two- to four-lane roads serving mainly agricultural and rural residential land uses and are maintained by Sutter County. State Route 20, which connects Yuba City to Colusa County, is in the northern part of the Project area and is classified as a rural arterial and expressway. State Route 99, to the west of the Project area, is also classified as a rural arterial and expressway, and connects the area to the rest of the Central Valley. Other roadways in the Project area include Franklin Road, Lincoln Road, Bogue Road, George Washington Boulevard, and Township Road. These roadways are primarily classified as rural collectors with some segments classified as rural arterials or urban collectors. Level of service on these roads is primarily A and B with small portions having service levels of C. Sutter County uses level of service D as the minimum acceptable standard for its roadways.

Airports

The nearest public airport is the Sutter County Airport, which is approximately 3.5 miles west of the proposed Project area. The nearest private airport facility is the Vandeford Ranch Company Airport, located within the Project area, approximately 0.75 miles west of the nearest proposed maintenance activities.

Discussion

a,b,e,f) **Less than Significant with Mitigation.** Project activities would intermittently and temporarily generate increases in vehicle trips by workers and construction vehicles on area roadways seasonally. However, maintenance staff typically use levee maintenance roads not open to the public. Project activities would occur within the proposed Project area and involve some truck trips for hauling spoils materials; however, activities may not result in a significant reduction in the number of, or the available width of, travel lanes on local roads except during times of transportation of equipment and materials along local and major roadways to and from the Project site and staging areas. The proposed Project would result in truck trips during the excavation process to remove sediment, debris, and vegetation from the channels. During this approximately 10-week time period annually, no more than a maximum of 14 vehicles would be used, and a maximum of 4 vehicles for hauling and transport would be on the road at any given time. The proposed Project would only result in a minimal increase traffic levels along the local roadways (which are already in operation at acceptable levels A and B) exclusively during Project activities, and would not result in decreased level of service. Nevertheless, Project activities could result in a temporary reduction in the number of, or the available width of, travel lanes on local roads. This would be a potentially significant impact. Implementation of Mitigation Measure TRAFFIC-1 would reduce this impact to a less-than-significant level.

Mitigation Measure

Measure TRAFFIC-1: Prepare and Implement Traffic Safety and Control Plan. DWR will coordinate with Sutter County to prepare and implement a traffic control plan, as appropriate. This traffic control plan will include measures to ensure that emergency access is maintained at all times. The plan may include, but is not limited to, the following measures:

- Access will be maintained for private roads and residences that would be affected by maintenance traffic will be notified of maintenance activities.
- Construction warning signs will be posted about the potential presence of slow-moving vehicles in advance of maintenance in heavy traffic areas and at intersections that provides access to the maintenance area.
- Traffic control personnel will be used to direct traffic, if necessary.
- DWR will train staff in appropriate safety measures as described in the traffic control plan.
- Before Project maintenance activities begin, DWR will notify State and local entities and coordinate information about the Project to ensure that emergency access through maintenance areas is maintained, as appropriate.

c) **No Impact.** The proposed Project would not involve aircraft, nor would the proposed Project result in structures that would intrude into aircraft flight paths or air traffic spaces. Therefore, the proposed

Project would have no impact on air traffic patterns that results in substantial safety risks. Therefore, no impact would occur.

d) **Less than Significant Impact.** Project maintenance activities would not result in new design features on roads in the area. Further, the proposed Project would not result in in potential traffic safety hazards for vehicles, bicyclists, and pedestrians on public roadways due to the intermittent and temporary maintenance activities. Project activities are ongoing, though sporadic, and would not result in new or more severe increase in the wear-and-tear on the designated haul routes used by construction vehicles to access the proposed Project area. Therefore, this impact would be less than significant.

3.3.17 Utilities and Service Systems

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less-Than-Significant Impact*	*No Impact*
17. UTILITIES AND SERVICE SYSTEMS — Would the project:				
a) Conflict with wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
c) Require or result in the construction of new storm water drainage facilities, or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☒	☐
e) Result in a determination by the wastewater treatment provider that would serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☒	☐

Environmental Setting

Potable water in Sutter County is provided by two sources: groundwater and surface water. Yuba City is the only user of surface water for potable water supplies, although Yuba City also uses groundwater for potable water supplies. Most of Project area is within unincorporated Sutter County where groundwater is the primary source for potable water supplies. In the rural areas, most of the groundwater is pumped by privately owned wells. There are also several municipal and community potable water systems within Sutter County. These systems rely on water supplies either from Feather River or from groundwater (Sutter County 2008).

Agricultural water in the Project area is provided by the Sutter Butte Mutual Water Company and the Sutter Extension Water Company (Sutter County 2008).

The Sutter Extension Water District provides water for agricultural use in Sutter County. The water is supplied by two pre-1914 water rights permits that allow for a combined total of 11,000 acre-feet of water per year and a third permit allowing 6,500 acre-feet of water per year. Sutter Extension procures their water through the Joint Water District (Sutter County 2008).

Throughout most of rural Sutter County (except Yuba City, Live Oak, and Robbins) wastewater is treated and disposed of through septic systems. Yuba City operates a sanitary sewer collection system and a wastewater treatment plant within the City's sphere of influence. Currently, there are no existing sanitary

sewer facilities extending beyond the City's sphere of influence, nor are any sewers planned to extend beyond the City's sphere of influence. The City's wastewater treatment plant was expanded in 2005 to provide an average dry-weather flow (ADWF) capacity of 10.5 million gallons per day (mgd). For the summer of 2007, the ADWF was approximately 5.5 mgd, and the current peak day wet-weather flow rate is approximately 8.5 mgd. The plant is currently discharging secondary, disinfected effluent to Feather River (Sutter County 2008).

Electricity purchased from Pacific Gas and Electric Company (PG&E) by local customers is generated and transmitted to the county by a large network of power plants and transmission lines located throughout California. Most of the electrical service in the county is carried through above-ground lines. However, new urban development is now typically served by underground service. PG&E currently has sufficient energy supplies and distribution facilities to meet anticipated demands and growth in the county (Sutter County 2008).

Sutter County has extensive natural gas resources located throughout the western portion of the county, with the majority of the operational gas wells located in the Meridian Basin, Robbins Basin, and the area around the Sutter Buttes (Sutter County 2008).

Yuba-Sutter Regional Waste Management Authority was formed in 1990 to provide solid waste services to Sutter and Yuba Counties. The Regional Waste Management Authority works in conjunction with Yuba-Sutter Disposal, Inc. (YSDI) to provide for the collection, recycling, and disposal of municipal solid waste from each member jurisdiction under an exclusive franchise agreement. The YSDI serves more than 30,000 residential customers and 5,000 commercial customers. The Ostrom Road Landfill is located in Wheatland (Yuba County) and is owned and operated by Norcal Waste Systems Ostrom Road LF Inc., a sister company to YSDI, and is the primary location for the disposal of waste by the YSDI. The 225-acre Class II Landfill is permitted to accept the following types of waste: solid waste; waste water treatment sludge; construction debris; food and green waste; some types of contaminated soils; and non-friable asbestos. The landfill can accept a maximum of 3,000 tons of waste a day and is estimated to have enough capacity to remain open until the year 2066 with only about three percent in use as of 2006 (Sutter County 2008).

Discussion

a) **No Impact.** As described in subsection 3.3.13, *Population and Housing*, the proposed Project would not result in the construction of any new facilities or population that would generate wastewater that would require treatment. Therefore, it would not result in an exceedance of Regional Water Quality Control Board wastewater treatment requirements. No impact would occur.

b,c,e) **No Impact.** As described in subsection 3.3.13, *Population and Housing*, the proposed Project would not result in the construction of any new facilities or population that would generate a need for new or physically altered water, wastewater, or stormwater facilities. The proposed Project would restore the channel capacity of the collecting canals and would not require any long-term water supplies, nor generate wastewater during its operation. The proposed Project does not include facilities that would generate new stormwater drainage needs or an expansion of existing water storage for stormwater/flood waters. Project activities would improve the currently impaired flood-capacity of the collecting canals without significantly modifying the current condition of the environment. No water, wastewater, or stormwater facilities would need to be expanded or constructed for the temporary construction needs; therefore, no impact would occur.

d) **Less than Significant Impact.** The proposed Project would require minimal water supply during maintenance activities. During maintenance, water would be used for controlling prescribed burns and dust suppression, as needed; however, that water would be trucked in (an ~2,500 gallon water truck is available at the SMY) and would increase water use over current conditions. Water demand would be temporary and minor, and no new or expanded entitlements would be required. Therefore, potential impacts associated with availability of water supplies would be less than significant.

f, g) **Less than Significant Impact.** Non-organic materials generated from the proposed Project would be hauled off-site to certified disposal sites, while organic material would be chipped for mulch, burned on-site, or hauled to a certified disposal site by pickup or dump truck. The proposed Project would not generate a volume of waste that would exceed the permitted capacity of applicable landfills serving the proposed Project area. Furthermore, all waste would be disposed of in accordance with federal, State, and local statutes and regulations. Therefore, this impact would be less than significant.

3.3.18 Mandatory Findings of Significance

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less-Than-Significant Impact*	*No Impact*
18. MANDATORY FINDINGS OF SIGNIFICANCE — Would the project:				
a) Have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b) Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☒	☐	☐
c) Have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

Discussion

a) **Less than Significant Impact with Mitigation.** The proposed Project would be temporary in nature and involve work activities within existing collecting canals and existing flood infrastructure to remedy channel capacity deficiencies and better accommodate existing flood conditions, providing a net beneficial effect to the surrounding area. Specifically, the improvements would improve the reliability of the collecting canals to contain flood/stormwater flows. The proposed Project would not substantially degrade the quality of the environment; substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below self-sustaining levels; threaten to eliminate a plant or animal community; reduce or restrict the range of rare or endangered plants or animals; or, eliminate important examples of the major periods of California history or prehistory. As discussed in the analyses provided in this IS, adherence to federal, State, and local regulations, various environmental protection measures implemented as part of the proposed Project, and proposed mitigation measures AG-1, AQ-1, BIO-1 through BIO-44, CUL-1 through CUL-5, HYD-1, NOISE-1, TRAFFIC-1 would reduce all potentially significant impacts to biological and cultural resources, as well as to other issue areas, to less-than-significant levels.

b) **Less than Significant Impact with Mitigation.** As noted throughout this document, the potential impacts of the proposed Project are largely restricted to temporary and short-term maintenance-related impacts and are site-specific. As noted, all of the potential direct and indirect impacts of the proposed Project were determined to be fully avoided or reduced to a less-than-significant level with incorporation of mitigation measures AG-1, AQ-1, BIO-1 through BIO-44, CUL-1 through CUL-5, HYD-1, NOISE-1, TRAFFIC-1. As a result, the potential impacts of the proposed Project are not considered cumulatively considerable, and impacts would be less than significant with mitigation incorporated.

c) **Less than Significant Impact with Mitigation.** The potential impacts of the proposed Project are temporary and short-term impacts, Project-related impacts, and are site-specific. These impacts are all localized to the proposed Project site and may include limited adverse effects on air quality, biological resources, cultural resources, water quality/soils, traffic, and noise. However, the proposed Project would not include any activities or uses that may cause substantial adverse effects on human beings, either directly or indirectly, or on the physical environment. The proposed Project has been designed to meet the DWR flood engineering standards and would incorporate adherence to local codes and regulations as conditions of Project approval. Compliance with applicable local, State, and federal standards, as well as incorporation of Project mitigation measures, would result in less-than-significant impacts.

CHAPTER 4
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