Bethany Dams Improvements Project

Initial Study/Proposed Mitigated Negative Declaration

April 2014

California Department of Water Resources

1416 Ninth Street

Sacramento, CA 95814

Initial Study

Bethany Dams Improvements Project

1. Project Title	Bethany Dams Improvements Project
2. Lead Agency Name and Address	California Department of Water Resources 1416 Ninth Street Sacramento, California 95814
3. Contact Person and Phone Number	Anthony Chu Program Manager II (916) 653-9978 Anthony.Chu@water.ca.gov
4. Project Location	Approximately nine miles northwest of the City of Tracy, Township 2 south, Range 3 east, Section 2, within the Clifton Court Forebay USGS 7.5 minute quadrangle in Alameda County. All projects are on the north side of the main reservoir.
5. Project Sponsor's Name	California Department of Water Resources
6. General Plan Designation	N/A – State-owned Water Conveyance System; Adjacent Agricultural Land Use
7. Zoning	N/A - Adjacent Agricultural Zone
8. Description of Project	The proposed Bethany Dams Improvements Project includes 1) seepage monitoring weir replacement, 2) palm tree removal at the interim plant outlet structure, and 3) drainage ditch improvements for vegetation control and seepage monitoring.
9. Surrounding Land Uses and Setting	The general project area is comprised of parklands and agricultural land.
10. Other Public Agencies Whose Approval is Required	U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, CA Department of Fish and Wildlife, Central Valley Regional Water Quality Control Board, State Office of Historic Preservation

MITIGATED NEGATIVE DECLARATION

PROJECT: Bethany Dams Improvement Project

LEAD AGENCY: California Department of Water Resources (DWR)

PROJECT LOCATION: Bethany Reservoir is located in northeastern Alameda County, approximately 10 miles northwest of the city of Tracy and 20 miles northeast of the city of Livermore.

PROJECT DESCRIPTION: DWR is proposing to perform maintenance activities at Bethany Reservoir's earthen dams. The proposed project includes actions to ensure the continued safe operation of the Bethany Reservoir, part of the State Water Project. These actions include the replacement of a seepage monitoring weir near the Bethany Forebay Dam's north abutment; removal of a palm tree growing from the interim plant outlet structure; and drainage ditch improvements to control vegetation, improve flow of water away from the dam faces, and for seepage monitoring. DWR's Division of Engineering and Division of Operations and Maintenance Dam Safety Branch has recommended these improvements in order to facilitate monitoring and prevent potential damage or failure of the dams.

DETERMINATION: An initial study (IS) was prepared to assess the project's potential effects on the environment and the significance of those effects. Based on the analysis conducted in the IS, it has been determined that implementing the proposed project would not have any significant adverse effects on the environment after adoption and implementation of mitigation measures.

MITIGATION MEASURES: The following mitigation measures will be implemented as part of the project to avoid, minimize, rectify, reduce or eliminate, or compensate for potentially significant environmental impacts. Implementation of these mitigation measures would reduce the potentially significant environmental impacts of the proposed project to less-than-significant levels:

Mitigation Measure AQ-1: Reduce Construction-Related Emissions from Off-Road Equipment and Heavy-Duty Vehicles

The following measures recommended by the Bay Area Air Quality Management District (BAAQMD) shall be implemented to reduce construction-related emissions associated with off-road equipment and heavy-duty vehicles (BAAQMD 2012):

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered as necessary to control fugitive dust.
- All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
- All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- All vehicle speeds on unpaved roads shall be limited to 15 mph.

- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.

- The simultaneous occurrence of excavation, grading, and ground-disturbing construction activities on the same area at any one time shall be limited. Activities shall be phased to reduce the amount of disturbed surfaces at any one time.

- Idling time of diesel powered construction equipment shall be no more than two minutes.

- Low VOC (i.e., ROG) coatings beyond the local requirements (i.e., Regulation 8, Rule 3: Architectural Coatings) shall be used.

- All construction equipment, diesel trucks, and generators shall be required to be equipped with Best Available Control Technology for emission reductions of NOx and PM.

- All contractors shall be required to use equipment that meets CARB's most recent certification standard for off-road heavy duty diesel engines.

Mitigation Measure Bio-1: Avoid and minimize potential impacts to general wildlife

To minimize potential impacts to any plants and wildlife potentially present within the project area, the following general measures will be implemented.

- Before any construction activities begin, a US Fish and Wildlife Service-approved biologist shall conduct a training session for all construction personnel. At a minimum, the training shall include a description and discussion of the mitigation measures within this document and a brief description of each species listed in these measures including a discussion of identification, habitat and legal protections.

- A Service-approved biologist will be present during all ground disturbing activities and activities in wetted areas.

- Project activities shall be performed during daylight hours. Work in wetted areas with standing water will take place between September 1st and October 31st.

- Absorbent materials will be available on site. Any accidental leaks or spills will be immediately cleaned up, and the equipment will not be able to return to the project area until it has been repaired sufficiently to prevent further leaks or spills.

- All trash shall be properly contained, removed from the work site, and disposed of properly to prevent attracting predators.

- Any observations of federally or state-listed species will be reported to the Service and the CDFW within three (3) working days of the observation.

- With the exception of California red-legged frogs and California tiger salamanders, all federally and state-listed species observed will be allowed to leave the project area on their own. The on-site Service-approved biologist will have the authority to determine whether activities must cease in order to ensure their protection.

Mitigation Measure Bio-2: Avoid and minimize impacts to special status plants

Botanical surveys will be conducted by a botanist in the appropriate seasons for special status species that are potentially present within the project footprint. If any special status plants are detected, they will be flagged and avoided as appropriate, or in the case of annual plants, efforts will be made to maintain the affected population. If federal or state listed plants cannot be avoided, the appropriate regulatory agencies will be consulted regarding preservation methods.

Mitigation Measure Bio-3: Avoid and minimize impacts to California tiger salamander

- Work is to take place during daylight hours during the dry season and not during rain events.

- Any burrows or large cracks in the ground that may be temporarily traversed by heavy equipment traffic will be covered with plywood to prevent collapse of the burrows.

- Impacts to areas determined to be habitat for CTS will be fully mitigated, in consultation with USFWS and CDFW, through a mitigation bank.

Mitigation Measure Bio-4: Avoid and minimize impacts to California red-legged frog

- DWR will submit to the Service (at least 15 days prior to onset of activities) the names and credentials of the biologists who will conduct the activities specified in the following measures. No activities will begin until DWR has received written approval from the Service that the biologist(s) is qualified to conduct the work. Only Service-approved biologists shall participate in activities associated with capture, handling, and monitoring of California red-legged frogs.

- A Service-approved biologist(s) will survey the disturbance areas each morning immediately prior to maintenance activities and will remove California red-legged frogs, both before and during the seepage monitoring weir replacement, palm tree removal, or drainage ditch vegetation removal. Removed vegetation and sediment will be carefully placed in the dump truck bed and examined for frogs prior to being disposed of at the spoils site.

- All California red-legged frogs will be placed in a cool, clean container with fresh, clean, cool water. Adult and sub-adult frogs will be kept in separate containers.

- To the extent practicable, any bullfrogs found at the project site will be dispatched and removed from the site.

- The Lindsay Wildlife Museum in Walnut Creek, California, will be notified and sent any injured California red-legged frogs for rehabilitation.

- After maintenance activities have ceased, any California red-legged frogs held in captivity will be released back into the work site within wetland habitat that is unaffected by the maintenance activities. If there is insufficient wetland habitat at the drainage of origin, frogs will be released at the nearest available area with suitable habitat. Care will be taken to minimize the frog's exposure to hydrogen sulfide. A minimum of one hour will pass after all maintenance activities within the pond or drainage have ceased before replacing the frogs.

- A report containing details of the construction activities and any observations of federally and state-listed species will be submitted to the Service and CDFW within 30 days of project completion. The report will document the number of California red-legged frogs at each life stage that were known to be taken and the form of take (e.g., harassment by moving, mortality).

- Impacts to areas determined to be habitat for California red-legged frogs will be fully mitigated, in consultation with USFWS and CDFW, pursuant to permit requirements.

Mitigation Measure Bio-5: Avoid and minimize impacts to migratory and special status birds

- A qualified biologist will conduct preconstruction surveys and identify active migratory bird nests within 250 feet, White-tailed Kite nests within 500 feet, and Swainson's Hawk nests within 0.25 miles of the project footprint. Preconstruction surveys shall be conducted during the nesting season (March 15 to August 15) no less than 14 days and no more than 30 days before any construction activity begins. If no nests are found, no further mitigation is required. Any construction activity that occurs between August 16 and March 14, outside the nesting season, shall not require preconstruction surveys.

- If nests are located, impacts shall be minimized by establishing an appropriate non-disturbance buffer zone around active nests in coordination with CDFW guidelines. Buffer zones shall be determined in consultation with CDFW and will depend on the species involved, site conditions, and type of work proposed. No new project activity shall occur within the buffer zone until the young have fledged, until the nest is no longer active, or until a qualified biologist has determined in consultation with CDFW that reducing the buffer would not result in nest abandonment. Monitoring of the nest by a qualified biologist during construction shall be required to ensure that nests are not jeopardized.

- Preconstruction surveys will be conducted for Burrowing Owls within 500 feet of the project area 30 days prior to construction. If an active burrow is found during the breeding season (February 1 through August 31), clear, visible markers will be placed on the roadways to clearly demarcate the burrow location so vehicles traveling either direction on the road and workers at the project site will avoid disturbing the area. Where feasible, buffer zones will be implemented

to minimize disturbance impacts while construction activities are occurring, following recommendations in the CDFW Staff Report on Burrowing Owl mitigation (CDFW 2012).

- If Burrowing Owls are present within 500 feet of the project area, active burrows will be monitored by a qualified biologist throughout the construction phase to determine the effectiveness of buffers, visual screens, or other measures, and to determine if the vehicle traffic is jeopardizing an active nest. DWR shall consult with CDFW for assistance in developing site-specific solutions, as needed, and to determine if the owls are sensitized to human disturbance and the survey effort can be reduced.

Mitigation Measure Bio-6: Avoid and minimize impacts to San Joaquin kit fox

- A qualified biologist shall conduct a pre-construction survey on DWR property no more than two weeks prior to work commencing to determine if there are any potential San Joaquin kit fox dens are located within 200 feet of the disturbance areas.

- Potential kit fox dens within 100 feet of a disturbance area will be tracked for three consecutive nights to determine if they are currently used by kit fox.

- Any potential kit fox dens located within 50 feet of a disturbance area will be temporarily blocked with burlap bags filled with soil (after three consecutive nights of tracking have been completed without evidence of San Joaquin kit fox use) to prevent them from using these dens during Project activities.

- A 100 foot exclusion zone will be marked around any known San Joaquin kit fox den within the survey area using lathe and flagging.

Mitigation Measure Bio-7: Minimize impacts to jurisdictional waters of the United States and waters of the State

- A temporary sediment barrier (silt fence) will be installed prior to the seepage monitoring weir replacement to prevent sediment from entering water bodies.

- All staging areas, parking areas, equipment, and storage areas for fuel, lubricants, and solvents will be located in areas away from waters of the United States and waters of the state.

Mitigation Measure Cul-1: Halt Ground-Disturbing Construction Activities if Cultural Materials Are Discovered

The following measures shall be implemented to avoid or minimize potential impacts to cultural materials:

- If a discovery of cultural materials (e.g., unusual amounts of shell, animal bone, flaked stone, bottle glass, ceramics, structure/building remains, etc.) is encountered during project construction, ground disturbances in the immediate vicinity of the find shall be halted

immediately and a qualified professional archaeologist shall be notified regarding the discovery. The archaeologist shall determine whether the resource is potentially significant as per the CRHR and identify appropriate management steps needed to protect and secure identified resources.

Mitigation Measure Cul-2: Halt Construction Activities if Any Human Remains Are Discovered

The following measures shall be implemented to avoid or minimize potential impacts to human remains:

The procedures for the treatment of discovered human remains are contained in Sections 7050.5 and 7052 of the California Health and Safety Code and Section 5097 of the California Public Resources Code.

- In accordance with the California Health and Safety Code, if human remains are uncovered during ground disturbing activities, such activities that may affect the remains shall be halted and DWR or its designated representative shall be notified. DWR shall immediately notify the county coroner and a qualified professional archaeologist. If the coroner determines that the remains are those of a Native American, the coroner must contact the NAHC by phone within 24 hours of making that determination (Health and Safety Code, Section 7050[c]).

- DWR's responsibilities for acting upon notification of a discovery of Native American human remains are identified in detail in Section 5097.9 of the California Public Resources Code. DWR or its appointed representative and the professional archaeologist shall consult with a Most Likely Descendant (MLD) determined by the NAHC regarding the removal or preservation and avoidance of the remains and shall determine whether additional burials could be present in the vicinity.

Assuming that an agreement can be reached between the MLD and DWR or their representative with the assistance of the archaeologist, these steps would minimize or eliminate adverse impacts on the uncovered human remains.

Anthony Chu
California Department of Water Resources
Division of Operations and Maintenance

4/7/2014
Date

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1.0 Introduction

1.1 Background

Bethany Reservoir was constructed as part of the State Water Project, which consists of a series of reservoirs, pumping plants, and aqueducts designed to convey water to various users throughout California. Bethany Reservoir serves as a forebay for the South Bay Aqueduct Pumping Plant and as an afterbay for the Harvey O. Banks Pumping Plant. In addition to its function as a conveyance facility, it also provides water-related recreational opportunities.

Bethany Reservoir is located approximately nine miles northwest of the City of Tracy (Figure 1) and has five dams: Bethany Forebay Dam and Bethany Dams 1 through 4. The Bethany Forebay Dam was completed in 1961. Construction of the additional Bethany dams was completed in 1967. These dams were designed as homogeneous rolled earthfill dams with internal drainage systems.

Due to the aging of the structures and the general need for maintenance, the proposed Bethany Dams Improvements Project includes 1) seepage monitoring weir replacement, 2) palm tree removal at the interim plant outlet structure, and 3) drainage ditch improvements for vegetation control and seepage monitoring.

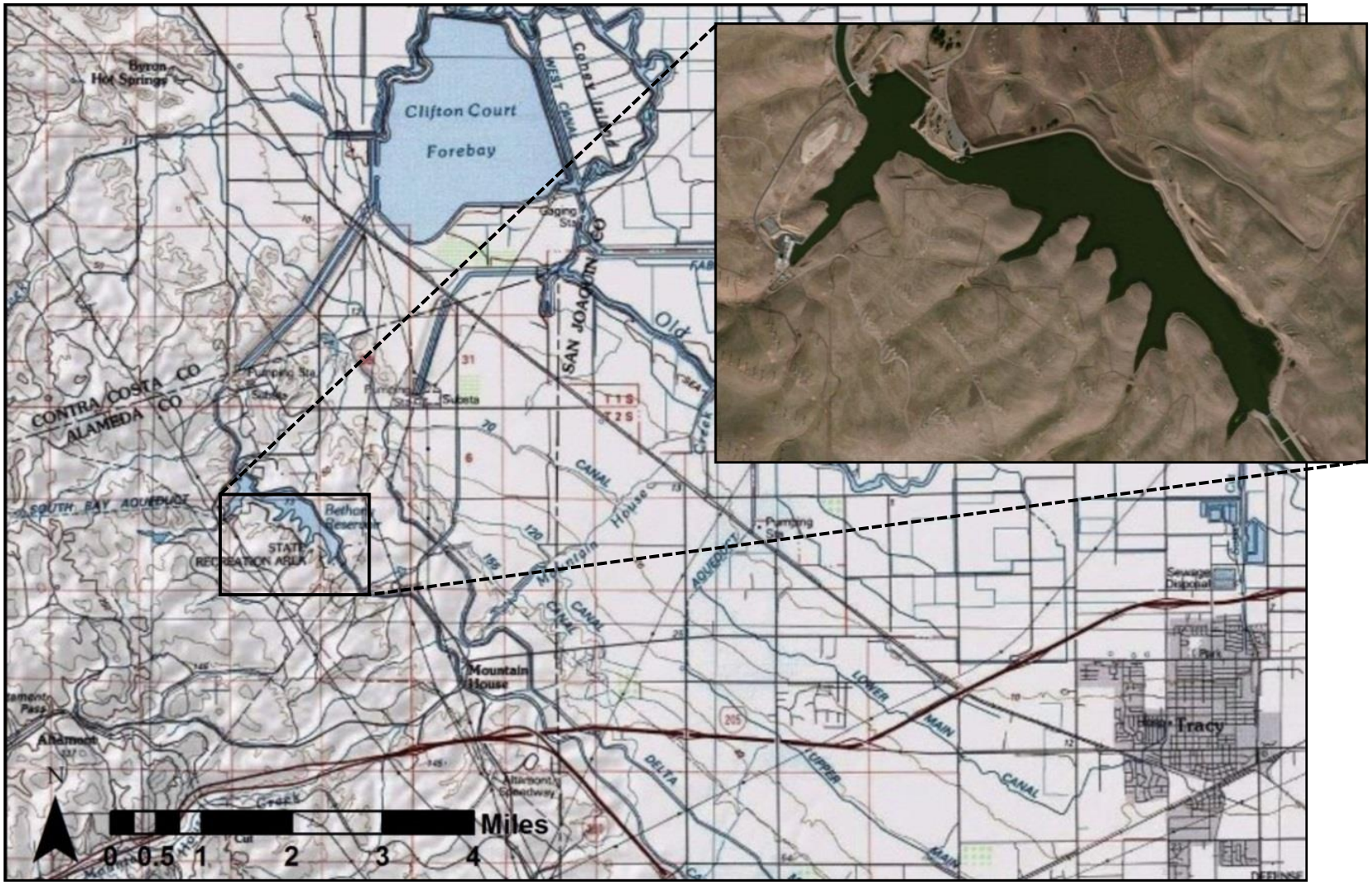

Figure 1: Location Map, Bethany Reservoir and Dams, Alameda County, California.

1.2 Project Purpose and Location

Maintenance requirements necessary to ensure proper and safe operation of Bethany Dams are outlined in the *Bethany Dams and Bethany Reservoir Design Engineer's Criteria for Operation and Maintenance* (DWR 1967) document. Item C Embankment, Section 8.0 of the document states:

> *"Maintenance of the dam embankments is expected to be of a routine nature. It will involve the periodic mowing of the grass on the downstream face of the dam embankments; the repairing of small cavities and rodent holes; replacing riprap; cleaning drainage ditches, pipes, and seepage outfalls; etc. An effective rodent control program should be implemented for the dams."*

The following section outlines the purpose and location of construction activities for the proposed maintenance and improvements at the Bethany Dams, including 1) seepage monitoring weir replacement, 2) palm tree removal at the interim plant outlet structure, and 3) drainage ditch improvements for vegetation control and seepage monitoring.

The Bethany Dams Improvements Project is located approximately nine miles northwest of the City of Tracy, California, near the intersection of Christensen Road and Bruns Road (Figure 1). The project site is in the U.S. Geological Survey (USGS) 7.5 Minute Clifton Court Forebay Quadrangle map in Township 2 South, Range 3 East, Section 2 (M.D.M).

All proposed maintenance and improvement activities will occur on the north side of Bethany Reservoir, within fenced areas that are not accessible to the public (Figure 2).

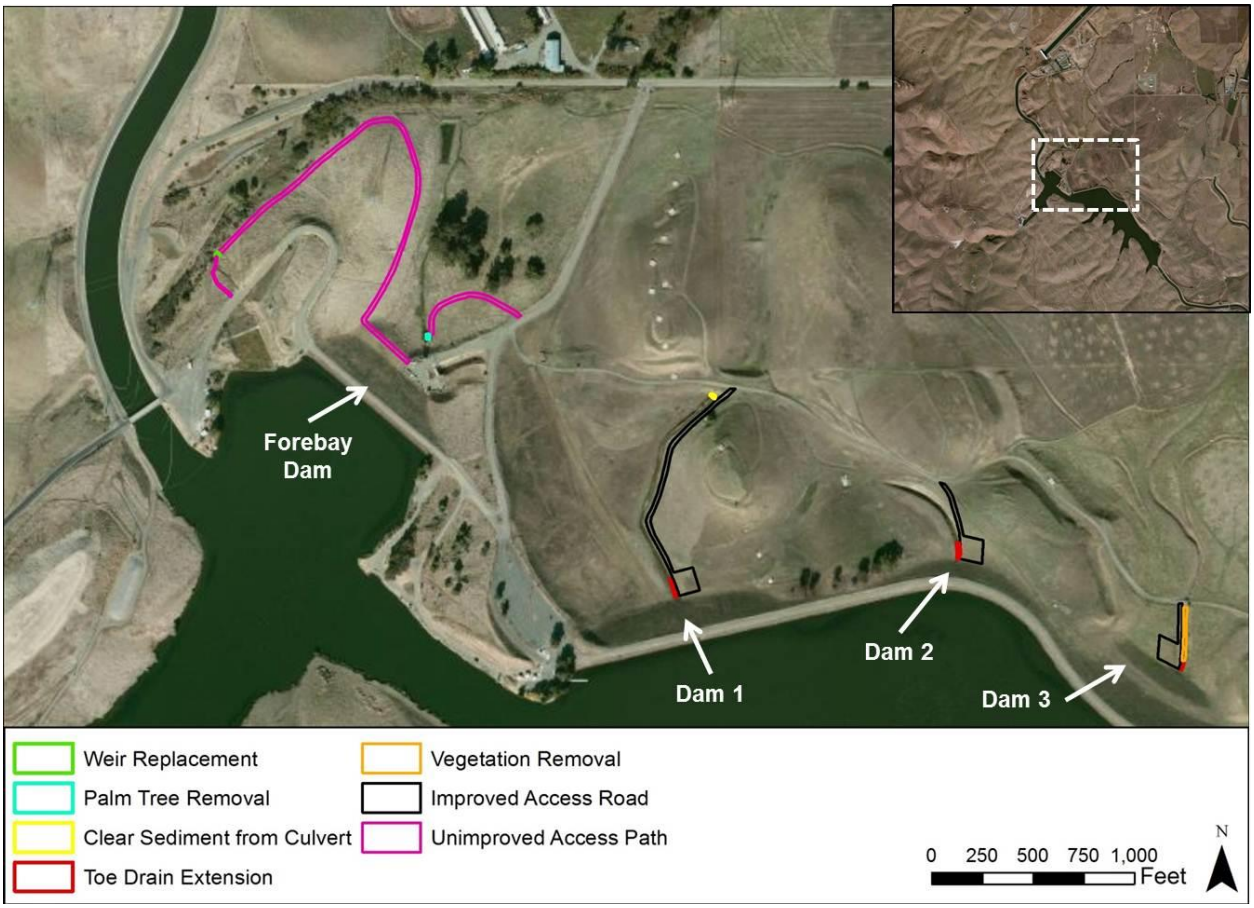

Figure 2: Map delineating footprints for Bethany Dams Improvements Project.

1.2.1 Seepage Monitoring Weir Replacement

In March 2011, Delta Field Division staff discovered a small seep northwest of Bethany Forebay Dam, near Mile Post (MP) 4.46 of the California Aqueduct. Measured seepage rates have ranged from less than 2 gallons per minute (gpm) to about 45 gpm, and are correlated with water level in the reservoir. A small sand bag ring was constructed around the seep and fitted with an outlet pipe to measure seepage rates and observe sediment levels in the water; increased seepage rate and sediment content are indicators of potential structural failure.

The temporary sand bag weir became degraded with rain and trampling by cattle, hindering seepage measurement and prompting the need to rebuild the sand bag weir in January 2013 (Figure 3). The temporary sandbag weir has already once necessitated replacement and will eventually become degraded in the absence of a permanent structure. DWR's Division of Engineering and Division of Operations and Maintenance Dam Safety Branch has recommended that the deteriorating sand bag ring be replaced with a permanent structure to more accurately measure seep rate and sediment load. Once constructed, measurements from the weir will be taken on a monthly basis by DWR's Delta Field Division as part of their dam safety surveillance and monitoring plan.

Figure 3: Temporary sand bag weir placed at MP4.46 a) new construction (March 2011), b) degraded (November 2011), and c) temporary repair (January 2013).

The seep is located within the canyon northwest of the Bethany Forebay Dam's left abutment. It is about 15 feet east and 3 to 4 feet above the drainage ditch located in the canyon's thalweg (lowest part). This location roughly coincides with the toe of a 75 foot high knoll separating the canyon from the Bethany Forebay Dam. The seep is approximately 6 inches in diameter and extends about 24 to 30 inches in depth and is surrounded by an area of saturated soil encompassing approximately 40 square feet. The footprint for this project will include the temporary sand bag weir and the area immediately adjacent to it, and an unimproved access path (Figure 4).

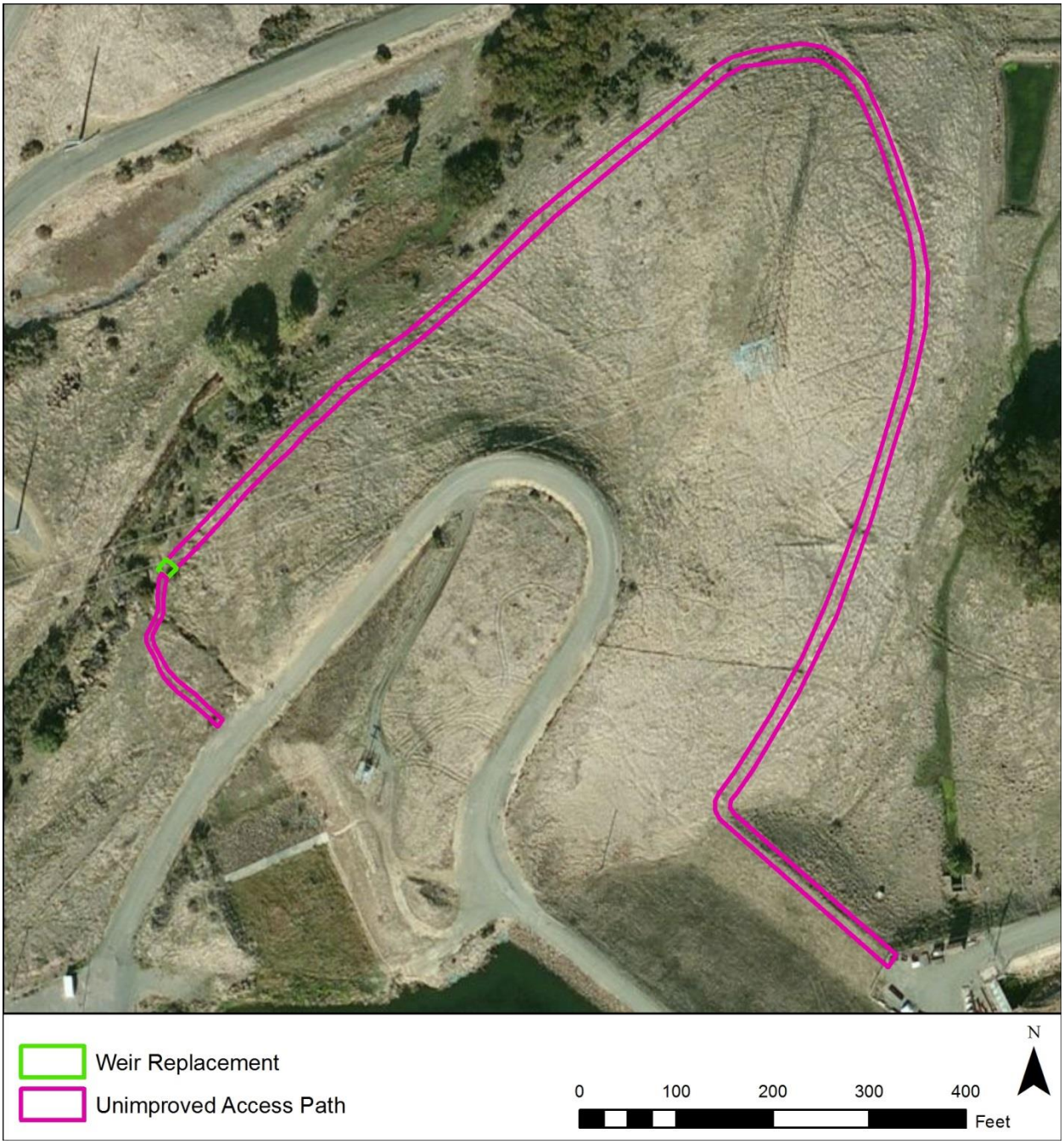

Figure 4: Map detailing proposed footprint for seepage monitoring weir replacement.

1.2.2 Palm Tree Removal at Interim Plant Outlet

Figure 5: Forebay Dam interim plant, showing palm tree growing at the interim plant structure and adjacent wetted area.

The Bethany interim plant is a structure that was built in order to divert water from the Delta Mendota Canal into the South Bay Aqueduct until 1967, when water was available through the California Aqueduct. A volunteer palm tree has grown in the vicinity of the interim plant's concrete outlet structure (Figure 5). The palm tree has been cited on numerous inspection reports as detrimental to the outlet work's performance, and warrants removal in order to better maintain the cement outlet structure (DWR 2007). The outlet drainage from the interim plant has historically been dry; however, leakage from the plant since 2010 has substantially increased the wetted area which now extends from the concrete structure along the drainage approximately 0.2 miles north to the natural drainage along Christensen Road. The extensive wetting within this drainage and presence of California red-legged frogs, a federally threatened species, has precluded DWR from removing the palm tree.

The footprint for the palm tree removal will include the immediate area around the palm tree and an unimproved access path (Figure 6).

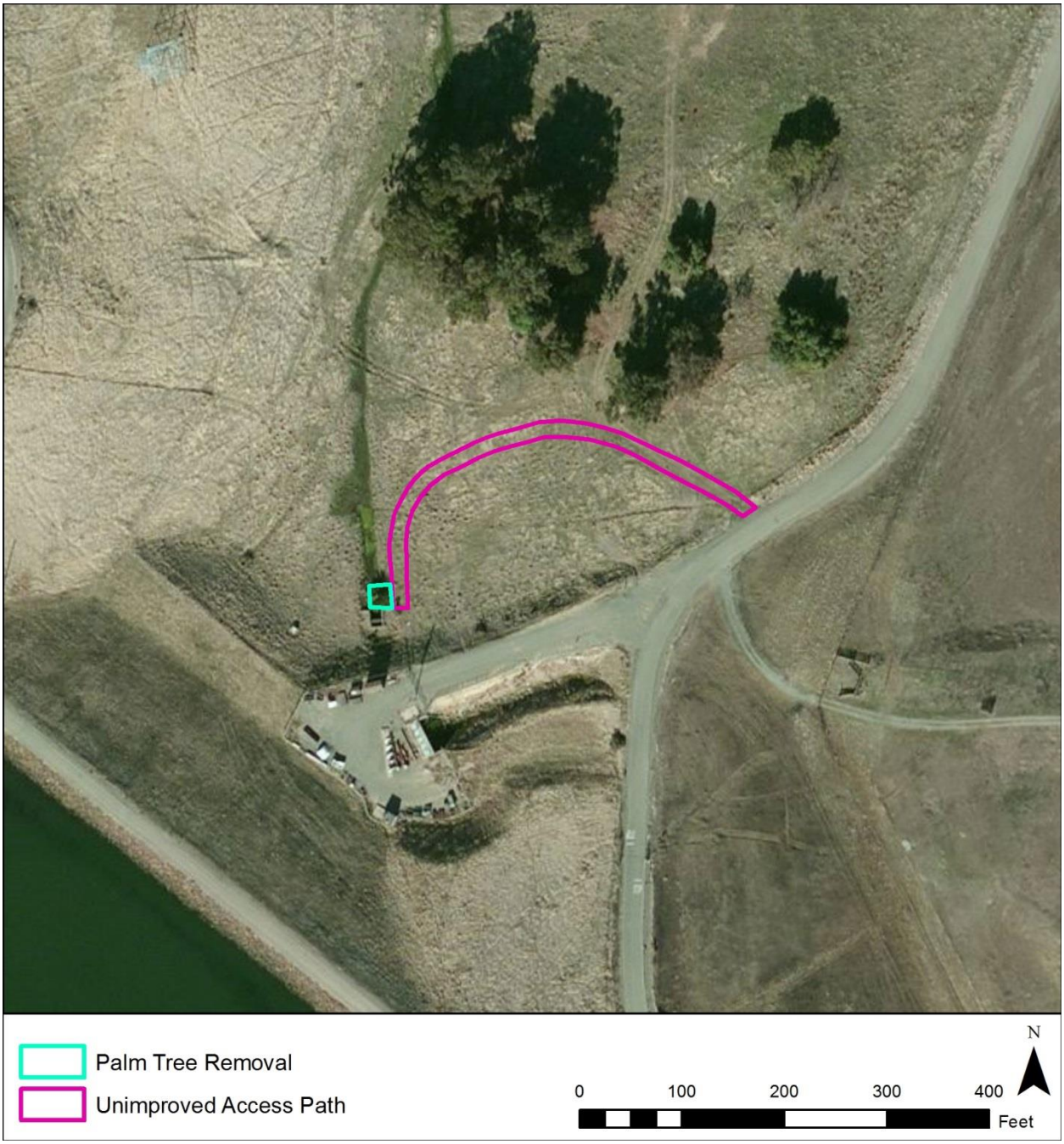

Figure 6: Map detailing footprint for palm tree removal.

1.2.3 Drainage Ditch Improvements

Bethany Dams 1 through 4 were constructed with internal sloping and horizontal drains designed to intercept and convey seepage to 12-inch diameter perforated drain pipes. These pipes convey internal seepage to concrete drainage outlet structures located at the toe of each dam. The drainage ditches were constructed to convey flows away from the toe of each dam to natural drainage courses.

Regular, routine maintenance of the vegetation within the drainage ditches has been interrupted in recent years due to the need for extensive permitting efforts based on the presence of California red-legged frogs, a threatened species, and the expiration of past permits. Vegetation was last removed from the Dam 1 drainage in 2002, and Dams 2 and 3 in 2004. Dam 4 has experienced very little seepage, and therefore did not need maintenance or improvement during that time period. Vegetation growth and sedimentation in the ensuing 8 to 10 years resulted in the obstruction of flow through the drainage ditches (Figure 7). Additionally, at the drainage ditch for Dam 1, the culvert at the road has become flattened and completely covered with sediment, further blocking flow away from the dam. These obstructions perpetuate vegetation growth by the ponding of water and accumulation of silt.

Figure 7: View of the vegetation choked drainage outlet structure at Bethany Dam 1.

Drainage ditch improvements are vital from a dam safety perspective, because the presence of ponded water at the toe of the dam has the potential to back up water within the drain pipe and effectively saturate the dam foundation and lowermost dam embankment materials. Ponded water may also mask seepage through or beneath the dam. Vegetation removal and prevention is critical because reliable seepage measurements (flow and turbidity) can no longer be taken at the toes of Dams 1 and 2 due to excessive growth of vegetation at the monitoring stations. These measurements serve as important monitoring data for dam performance and safety evaluations.

The footprint for drainage ditch improvements will include the area necessary for access road improvements, toe drain extensions, culvert repair at Dam 1, and vegetation removal along the Dam 3 drainage ditch (Figures 8 and 9).

Figure 8: Detail map of Bethany Dam 1 drainage ditch extension project footprint.

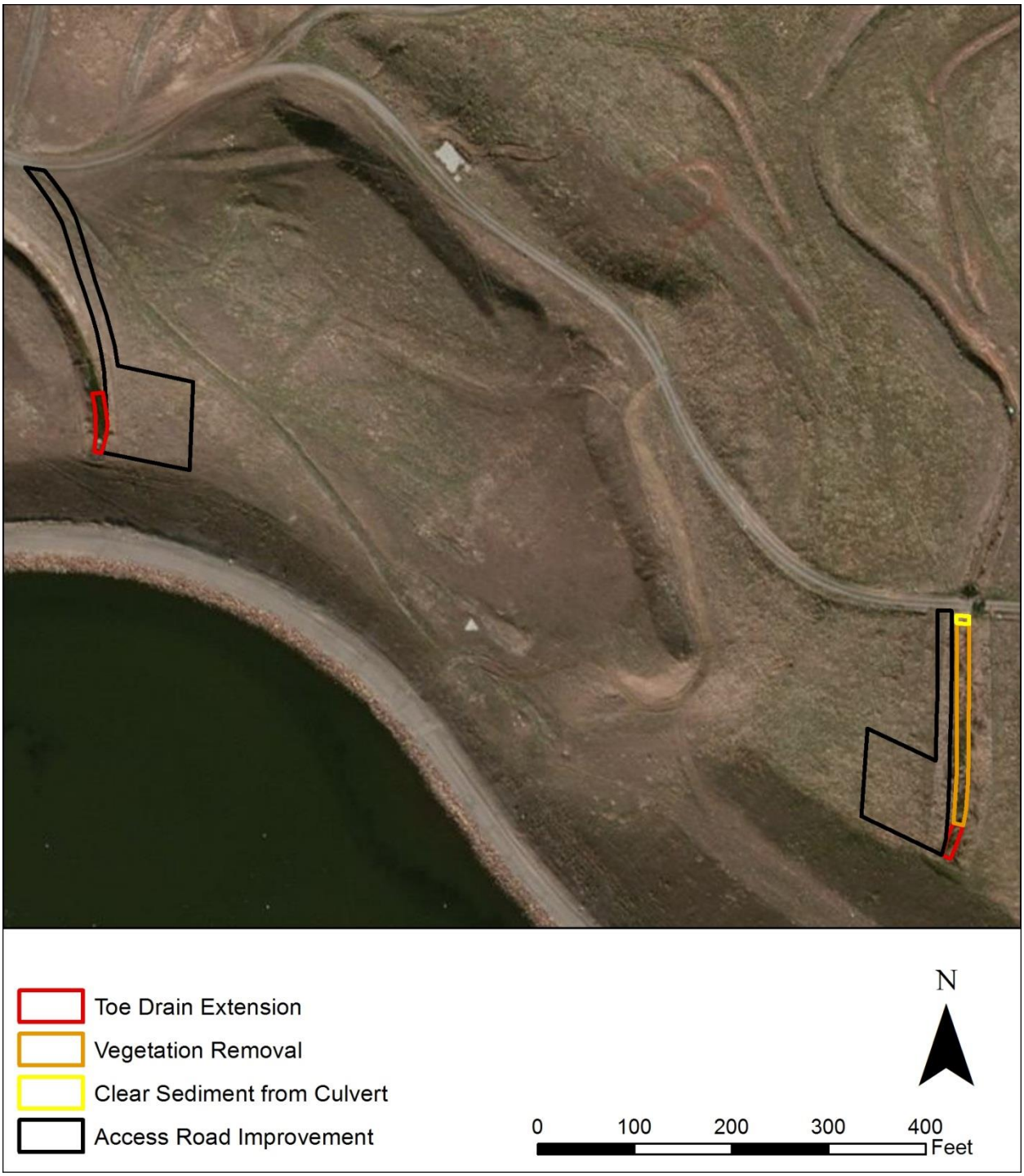

Figure 9: Detail map of Bethany Dams 2 and 3 drainage ditch extension project footprint.

1.3 Regulatory Requirements, Permits, and Approvals

DWR has the responsibility to ensure that all requirements of CEQA and other applicable regulations are met. Other permitting requirements for this project are listed below:

- Streambed Alteration Agreement from the California Department of Fish and Wildlife (CDFW) pursuant to Section 1601 of the California Department of Fish and Game Code.
- Incidental take authorization under the California Endangered Species Act (Section 2081 of the California Fish and Game Code) for California tiger salamander.
- Nationwide Permits from the US Army Corps of Engineers (USACE) pursuant to Section 404 of the Federal Clean Water Act.
    - USACE will initiate Section 7 consultation with US Fish and Wildlife Service to comply with the Federal Endangered Species Act.
    - USACE will initiate Section 106 consultation with the State Historic Preservation Officer to comply with the State Historic Preservation Act.
- Water Quality Certification from the Regional Water Quality Control Board pursuant to Section 401 of the Federal Clean Water Act.
- Construction General Permit to comply with National Pollutant Discharge Elimination System (NPDES) standards from the Regional Water Quality Control Board pursuant to Section 402 of the Clean Water Act.

2.0 Project Description

This project is comprised of the following maintenance and improvement activities:

- Seepage monitoring weir replacement,
- Palm tree removal at the interim plant outlet structure, and
- Drainage ditch improvements at Dams 1-3 for vegetation control and seepage monitoring.

2.1 Construction Methods and Activities

2.1.1 Seepage Monitoring Weir Replacement

The most expedient access to the site by foot is achieved from the access road above the canyon to the southeast (Figure 4). To access the seepage monitoring weir for construction, a 15' wide access path from the existing road to the weir will be mowed. All tools necessary will be transported to the site using a bobcat or skiploader traveling over the mowed access path. The permanent seepage monitoring weir is anticipated to be 25 square feet and will be immediately adjacent to the temporary sand bag structure. The area will be excavated to firm soil, approximately 2-3 feet in depth, to lay the foundation for the permanent structure. Wooden framework and steel reinforcement would be installed and concrete would be mixed and placed. Once the concrete has cured, the framework will be removed. Angle iron and bolts and a 90 degree v-notch weir plate will be installed on the outside of the weir box and a staff gauge will be installed on the interior of the weir box. Sand bags, plastic pipe, and all remaining construction materials will be removed from the site. The permanent weir will be surrounded by barbed-wire fencing to protect against damage by cattle. The fencing will be located at least two feet around each side of the weir, with a gate for access by personnel. See Figure 10 for a schematic of the proposed seepage monitoring weir replacement and Figure 4 for the activity footprint.

Annual maintenance will consist of mowing or weed-eating a 10 foot wide footpath for personnel access to the weir on foot, vegetation removal within the footprint of the seepage monitoring weir, repairs to the concrete, and cleaning of the weir as necessary.

Figure 10: Schematic of Seepage monitoring weir replacement. A) Current conditions, B) Replacement activity, C) Completed replacement.

2.1.2 Palm Tree Removal at Interim Plant Outlet

Removal of the palm tree will involve primarily hand work to fell and dismantle the tree. The palm tree will be felled toward the land-side of the drainage, cutting as close to ground level as possible. The tree will then be cut into manageable pieces and a crane or back hoe will be used to load material into a dump truck that will either haul the material to a green waste facility, or will dispose of it within a green waste refuse container at an established staging or spoils area.

Heavy equipment access to the site will be restricted to a mowed but otherwise unimproved access path (Figure 6). A sandbag and/or Visqueen and wood post cofferdam will be installed and the area around the palm tree will be dewatered to the extent practicable using portable pumps to facilitate detection and temporary removal of California red-legged frogs. See Figure 11 for a schematic of the proposed palm tree removal at the interim plant outlet and Figure 6 for the activity footprint.

Figure 11: Schematic of palm tree removal at Interim Plant. A) Current conditions, B) During removal activity, C) completed removal.

2.1.3 Drainage ditch improvements

Vegetation and sediment has accumulated within the drainage ditches at Dams 1, 2, and 3, obstructing the flow of water away from the toe of the dams, and preventing personnel from monitoring seepage rates. Additionally, the culvert at the Dam 1 drainage has become damaged and blocked with sediment, further obstructing flow away from the dam.

In order to promote seepage flow away from the toes of the dams, DWR proposes to remove obstructing vegetation and extend the drain pipes away from the dam toes (Figure 12). First, access roadways will be improved to allow equipment to enter and facilitate future seepage monitoring. A 15 foot wide access road with 92 by 92 foot vehicle turnaround will be graded along each drainage, and aggregate base material (A/B) will be placed along the length from the entrance road to the dam toe.

The toe drain outfall pipes will be extended approximately 60 feet downstream for Bethany Dam 1, approximately 50 feet for Dam 2, and approximately 26 feet for Dam 3. To prepare for these extensions, the grade of the existing drainage ditches may need to be modified to allow for water to flow away from the dam within the pipes. An excavator or backhoe will be used to remove vegetation and sediment as necessary for the length of each extended drain pipe plus an additional 10 feet to allow personnel access for seepage monitoring. New 12 inch diameter

pipes will be connected to the existing outfall by a sleeve or coupling and supported on concrete cradles or blocks. New pipes will have cleanouts in both directions, at the connection point and at the outfall. The pipes and their supports will be installed by a combination of hand labor and an excavator equipped with slings to place materials.

A durable rock slope protection fabric will then be placed on the bottom and sides of the ditch along the outfall length to prevent vegetation growth, and a 12 inch layer of 6 – 8 inch Class II angular rock slope protection will be placed over the fabric.

The improved area will be surrounded by barbed-wire fencing to protect against damage by cattle. The fencing will be located at least two feet outside of the top of each side of the ditch, up to the existing outfall structure, and downstream to the terminus of the rock slope protection. Gates will be installed near the pipe outlets and cleanouts to allow seepage monitoring and inspections. See Figure 12 for a schematic of the proposed drainage ditch outfall extension.

Figure 12: Schematic representation of drainage ditch improvements. A) Current drainage ditch conditions, B) drainage ditch during improvement activities, C) completed improvements.

For the Dam 1 culvert repair, vegetation and sediment will be removed from within the culvert itself and 10 feet of the drainage ditch in front of the culvert opening (Figure 13). The culvert will then be repaired so water can flow unimpeded away from the dam to the natural drainage.

Figure 13: Vegetation to be removed for Dam 1 culvert repair will begin at this photo point and continue 10 feet up the channel.

At Dam 3, vegetation will be removed from half of the width of the channel between the rocked outfall to the road culvert using a backhoe or excavator to allow water to flow unimpeded away from the dam (approximately 204 feet) while maintaining habitat for amphibians.

Vegetation or excess soils removed from the toe drains will be loaded into dump trucks and deposited at an existing spoils location at the DWR Operations and Maintenance Facility (Figure 14) until dry, and then hauled to a local landfill. See Figures 8 and 9 for detailed maps of drainage ditch activity footprints.

Annual maintenance will include removal of any vegetation growing within the rock slope protection, restoration or addition to any rock slope protection which has sloughed down the ditch sides, repairing fence damage, repairing any leaks or damaged pipe segments, and adjusting or restoring the concrete supports to the pipes as needed on a yearly basis.

On a biennial basis, or longer intervals if vegetation regrowth is slower, vegetation will be removed from alternating halves of the Dam 3 drainage ditch as necessary to maintain water flow away from the dam.

2.1.4 Staging, Spoil and Stockpile Areas

Staging will be conducted within or immediately adjacent to the improved access roads and turnarounds for Bethany Dams 1, 2, and 3, and on paved access roads that are adjacent to the seepage monitoring weir and interim plant. During construction, designated spoil and stockpile areas as described in Section 1.3 Project Location and identified in Figures 14, 15 and 16, will be used. The spoil site at DWR's Operations and Maintenance facility is approximately 185 feet by 30 feet (Figure 14). The two stockpile areas are approximately 124 feet by 140 feet by 195 feet and 15 feet by 100 feet (Figure 15). The stockpile areas at DWR's Clifton Court Forebay are approximately 215 feet by 185 feet and 50 feet by 200 feet (Figure 16).

Figure 14: Detail map of proposed site for temporary spoil of material from Bethany Dams vegetation removal.

Figure 15: Detail map of existing stockpiles at DWR's Operations and Maintenance facility, one mile north of the project site, containing materials for road improvements and drainage ditch extensions.

Figure 16: Detail map of existing stockpiles at DWR's Clifton Court Forebay, three miles north-northwest of the project site, containing materials for road improvements and drainage ditch extensions.

2.1.5 Construction Equipment

Equipment for the seepage monitoring weir replacement will include a bobcat, skiploader, power tools, small gas powered generator, concrete mixer, and finishing tools.

Equipment for the palm tree removal will include a crane, backhoe, chainsaw, hand tools and a dump truck or dumpster. Dewatering equipment would also include a portable pump and hoses and a sandbag or Visqueen and wood post cofferdam.

Equipment for the drainage ditch improvements will include an excavator, backhoe, dump truck, grader, roller, water truck, and hand tools.

2.2 Construction Schedule

All work in wetted areas would be restricted to September 1 through October 31. Work on all three activities is planned to commence during the dry season of 2014 (approximately June-October). Improvements would be made to at least one drainage ditch per year, thus it would take a maximum of three years to complete all drainage ditch improvements. Annual maintenance would occur at all three dam drainage ditches, which may include biennial vegetation clearing within alternating sides of the Dam 3 drainage ditch. The seepage monitoring weir replacement and interim plant palm tree removal will be completed within the first year of work.

Table 1: Proposed schedule of Bethany Dams Improvements Project activities for the initial five years.

Activity		Year 1	Year 2	Year 3	Year 4	Year 5
Seepage monitoring weir replacement		X				
	Weir annual maintenance		X	X	X	X
Palm tree removal at interim plant		X				
Drainage ditch improvements: Dam 1		X				
Drainage ditch improvements: Dam 2			X			
Drainage ditch improvements: Dam 3				X		
	Ditch annual maintenance		X	X	X	X

3.0 Environmental Checklist

The environmental factors checked below would potentially be affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

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

Determination:

On the basis of this initial evaluation:

☐ 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 to 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 an impact on the environment that is "potentially significant" or "potentially significant unless mitigated" 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 ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the project, nothing further is required.

Signature _____ Date 4/7/2014

Printed Name Anthony Chu For _____

3.1 Aesthetics

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
I. 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 day or nighttime views in the area?	☐	☐	☐	☒

3.1.1 Environmental Setting

The project site is located in a rural area within unincorporated Alameda County, in the most northern part of the San Joaquin Valley.

Several state and locally designated scenic routes are located in the general vicinity of the project site. Interstate 580 (I-580) is located approximately 3 miles south of the site and is an officially designated state scenic highway from Interstate 205 (I-205) in Alameda County to the San Joaquin County border, and it is also a County-designated scenic corridor (Caltrans 2010; Alameda County 1996). Byron-Bethany Highway and Mountain House Road, both of which are designated by the County as scenic rural recreational routes, are located within approximately 3 miles of the site.

The existing visual character of the Bethany Reservoir is similar to other water bodies in the Delta region with levees, canals, water diversion/conveyance, and recreational infrastructure. Bethany Reservoir has a gross capacity of 5,250 acres and includes five dams: Bethany Forebay Dam and Bethany Dams 1 through 4. These dams were designed as homogeneous rolled earthfill dams with internal drainage systems. Bethany Reservoir serves as a forebay for the South Bay Aqueduct Pumping Plant and as an afterbay for the Harvey O. Banks Pumping Plant. It also serves as a conveyance facility for the California Aqueduct and provides water-related recreational opportunities

Anglers utilize the Bethany Reservoir by fishing from the shore or from two fishing platforms (one at the upper reservoir and one at the lower). The landscape consists of grasslands, emergent and submergent wetlands, and floating vegetation.

3.1.2 Discussion

a) Have a substantial adverse effect on a scenic vista?

Less-than-significant impact. The project site is not located in an area that is considered a scenic vista. The site is also not visible from a designated state scenic highway, as the site is too far away from I-580 to be readily visible. Neither Byron-Bethany Highway nor Mountain House Road provide public views of Bethany Reservoir and the project would not substantially change or damage any scenic resources within view of these roadways. During maintenance activities, views of the Bethany Reservoir would not be eliminated or blocked. Impacts would be temporary in nature and would not be considered significant. Therefore, this impact would be less than significant.

b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

No impact. The closest roadway to the project site is Mountain House Road, which is located to the east of the project site. Mountain House Road is not an officially designated State Scenic Highway (Caltrans 2010) but is a County designated scenic rural recreation route. Accordingly, no impacts would occur to scenic resources within a state scenic highway as a result of the proposed project.

c) Substantially degrade the existing visual character or quality of the site and its surroundings?

Less-than-significant impact. Construction impacts would be temporary and the proposed project would return the site to conditions consistent with the existing visual character. During the proposed project, the presence of construction equipment would temporarily degrade the visual character of the site. However, these impacts would be temporary in nature and would not be considered significant. This impact would be less than significant.

d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

No impact. Existing sources of lighting in the vicinity include headlights from vehicles and utility development in the area. The proposed project will not create additional lighting to the Bethany Reservoir. The site is surrounded by levees, canals, and mostly open space and no residences or other uses that would be affected by the lighting. Accordingly, no impacts would result from an increase in light or glare from the proposed project.

3.2 Agricultural & Forest Resources

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
II. 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, as updated) 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?	☐	☐	☐	☒

3.2.1 Environmental Setting

The project site is surrounded by dams and grasslands. Land surrounding the project site is mapped as non-prime agricultural land by the California Department of Conservation (California Department of Conservation 2012).

3.2.2 Discussion

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?

No impact. The proposed project would be located entirely within DWR property associated with the Bethany Reservoir. No Farmland exists on the project site and no conversion of farmland would occur as a result of the project. As such, no impacts resulting from the conversion of farmland would occur.

b) Conflict with existing zoning for agricultural use or a Williamson Act contract?

No impact. The project site is located within DWR property and is surrounded by the Bethany Reservoir and associated land and infrastructure. The surrounding area near the project site is zoned as non-enrolled land and non-prime agricultural land under the Williamson Act. The proposed project will not affect existing zoning; therefore, there would be no impact.

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))?

No impact. No forest land or timberland exists on the project site. As such, no forest land or timberland would be impacted by the construction of the project.

d) Result in the loss of forest land or conversion of forest land to non-forest use?

No impact. As noted in topic (c) above, the project site does not include any forest land. Therefore, there would be no impact.

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?

No impact. The proposed activities would not alter the existing land use of the project site and no impacts to farmland or forest land would occur. Therefore, there would be no impact.

3.3 Air Quality

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
III. Air Quality.				
Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied on 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?	☐	☐	☒	☐

3.3.1 Environmental Setting

The proposed project is located in Alameda County, which is within the San Francisco Bay Area Air Basin (SFBAAB). The SFBAAB comprises all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara counties, the southern portion of Sonoma County, and the southwestern portion of Solano County.

The SFBAAB is characterized by complex terrain consisting of coastal mountain ranges, inland valleys, and bays that distort normal wind flow patterns. The Coast Range mountains trending northwest along the western side of the SFBAAB have two major open areas at the Golden Gate and the Carquinez Strait that allow air to flow in and out of the SFBAAB and the Central Valley. During the summertime, temperature inversions can cause pollutant concentrations to build to

unhealthy levels because of the lack of dispersion. During the summer, winds flowing from the northwest are drawn inland through the Golden Gate and over the lower portions of the San Francisco Peninsula. In the winter, the Pacific high pressure cell weakens and shifts southward resulting in wind flow offshore, the absence of upwelling, and the occurrence of storms. Weak inversions coupled with moderate winds result in a low air pollution potential. The Pacific high pressure cell periodically becomes dominant, bringing strong inversions, light winds, and high pollution potential (BAAQMD 2012).

National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) have been established for the following criteria pollutants: carbon monoxide (CO), ozone, sulfur dioxide (SO_2), nitrogen dioxide (NO_2), particulate matter less than 10 microns (PM_{10}), particulate matter less than 2.5 microns ($PM_{2.5}$), and lead. These standards have been established with a margin of safety to protect the public's health. Both the U.S. Environmental Protection Agency (EPA) and the California Air Resources Board (CARB) designate areas of the state as attainment, nonattainment, maintenance, or unclassified for the various pollutant standards according to the federal Clean Air Act (CAA) and the California Clean Air Act (CCAA), respectively.

An "attainment" designation for an area signifies that pollutant concentrations did not violate the NAAQS or CAAQS for that pollutant in that area. A "nonattainment" designation indicates that a pollutant concentration violated the standard at least once, excluding those occasions when a violation was caused by an exceptional event, as identified in the criteria. A "maintenance" designation indicates that the area was previously non-attainment and is currently attainment for the applicable pollutant; the area must demonstrate continued attainment for a specified number of years prior to redesignation as an "attainment" area. An "unclassified" designation signifies that data do not support either an attainment or nonattainment status.

The SFBAAB is designated as a nonattainment area for the State and federal 8-hour ozone standards, the state PM_{10} standard, and the state and national $PM_{2.5}$ standards. The SFBAAB is considered an attainment area or unclassified for the other criteria pollutants.

The Bay Area Air Quality Management District (BAAQMD) is the agency responsible for protecting public health and welfare through the administration of federal and state air quality laws and policies in the SFBAAB. In June 2010, BAAQMD adopted its updated CEQA Air Quality Guidelines, which included new thresholds of significance for construction-related and operational emissions of criteria air pollutants and precursors. On March 5, 2012 the Alameda County Superior Court issued a judgment finding that the BAAQMD had failed to comply with CEQA when it adopted the thresholds of significance contained in the Air Quality Guidelines. The Superior Court issued a writ of mandate that ordered the BAAQMD to set aside the thresholds and cease dissemination of them until the BAAQMD had complied with CEQA (BAAQMD 2012). In view of the Superior Court's order, the BAAQMD recommends that lead agencies continue to rely on the thresholds of significance in the BAAQMD's 1999 CEQA Guidelines. The BAAQMD issued new guidelines in May 2012 that include assistance in

calculating air pollution emissions, obtaining information regarding the health impacts of air pollutants, and identifying potential mitigation measures, but it does not include thresholds of significance.

3.3.2 Discussion

a) Conflict with or obstruct implementation of the applicable air quality plan?

Less-than-significant impact. Air quality plans describe air pollution control strategies to be implemented by an air district, city, county or region. The primary purpose of an air quality plan is to maintain and/or achieve attainment of a CAAQS or NAAQS.

BAAQMD prepares plans to attain ambient air quality standards in the SFBAAB, including ozone attainment plans for the national ozone standard and clean-air plans for the California standard, in coordination with the Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments. On September 15, 2010, the BAAQMD Board of Directors adopted the final Bay Area 2010 Clean Air Plan, an update to the 2005 Bay Area Ozone Strategy. The 2010 plan describes current conditions; reviews the SFBAAB's progress in reducing ozone levels to attain the State 1-hour and 8-hour ozone standards; and describes how the SFBAAB's proposed control strategy fulfills the CCAA's planning requirements for the State 1-hour ozone standard, and its mitigation requirements for transport of ozone and ozone precursors to neighboring air basins. The control strategies include stationary-source control measures to be implemented through BAAQMD regulations; mobile-source control measures to be implemented through incentive programs and other activities; and transportation control measures to be implemented through programs operated in cooperation with the MTC, local governments, and transit agencies.

Two criteria are applicable to determine if the proposed project would conflict with or obstruct implementation of the air quality plan. The first criteria is whether the project would exceed the estimated air basin emissions used as the basis of the air quality plans, which are based, in part, on population and vehicle miles traveled (VMT) projections developed by the MTC. While the air quality plan includes mobile sources, minor changes in the assumptions relative to these sources would not obstruct the successful implementation of the strategies for improvement of the SFBAAB's air quality. The proposed project would only result in minor changes to VMT as a result of construction equipment on the project site.

The second criteria is whether the project would increase the frequency or severity of violation of existing air quality violations, contribute to new violations, or delay the timely attainment of air quality standards. As discussed in item b) below, operational emissions associated with the proposed project would not exceed the BAAQMD thresholds of significance. Because the project would not significantly increase VMT and would not exceed the thresholds of significance, the project would not conflict with or obstruct the implementation of the applicable air quality plan. Therefore, the impact would be less than significant.

b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Construction Emissions

Less-than-significant impact with mitigation incorporated. Emissions are described as "short-term" or temporary in duration, but have the potential to represent a significant impact with respect to air quality. Construction-related emissions of ozone precursors, reactive organic gases (ROG) and nitrogen oxides (NO_X), are primarily associated with mobile vehicle and equipment exhaust. Fugitive dust emissions are primarily associated with site preparation and vary as a function of such parameters as soil silt content, soil moisture, wind speed, acreage of disturbance area, and VMT by maintenance vehicles on- and off-site.

The proposed project would result in the temporary generation of ROG, NO_X, PM_{10}, and $PM_{2.5}$ emissions from maintenance work described in the project description. Off-site vehicle trips related to maintenance activities would be associated with material delivery, equipment delivery, and worker commutes.

Emissions and emission concentrations can vary substantially from day to day, depending on the level of activity, the specific type of operation and the prevailing weather conditions. In addition to the use of off-road equipment, on-road heavy-duty vehicles would be required to haul materials to the project site.

BAAQMD does not currently have established numeric thresholds for criteria air pollutants. According to the 1999 BAAQMD CEQA Guidelines, the determination of impact significance with respect to emissions should be based on a consideration of the control measures to be implemented. If feasible control measures would be implemented, then air pollutant emissions from impacts from construction activities would be considered less than significant. If all of the appropriate measures would not be implemented, then construction impacts would be considered to be significant (unless the Lead Agency provides a detailed explanation as to why a specific measure is unnecessary or not feasible). Because BAAQMD-recommended control measures have not been included in the proposed project, construction-related emissions for the proposed project would be considered significant. In order to reduce construction-related emissions to a less-than-significant level, the proposed project shall implement the following mitigation measure:

> **Mitigation Measure AQ-1: Reduce Construction-Related Emissions from Off-Road Equipment and Heavy-Duty Vehicles**
>
> The following measures recommended by the BAAQMD shall be implemented to reduce construction-related emissions associated with off-road equipment and heavy-duty vehicles (BAAQMD 2012):

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered as necessary to control fugitive dust.
- All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
- All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- All vehicle speeds on unpaved roads shall be limited to 15 mph.
- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- The simultaneous occurrence of excavation, grading, and ground-disturbing construction activities on the same area at any one time shall be limited. Activities shall be phased to reduce the amount of disturbed surfaces at any one time.
- Idling time of diesel powered construction equipment shall be no more than two minutes.
- Low VOC (i.e., ROG) coatings beyond the local requirements (i.e., Regulation 8, Rule 3: Architectural Coatings) shall be used.
- All construction equipment, diesel trucks, and generators shall be required to be equipped with Best Available Control Technology for emission reductions of NOx and PM.
- All contractors shall be required to use equipment that meets CARB's most recent certification standard for off-road heavy duty diesel engines.

According to the BAAQMD, implementation of these control measures is sufficient to reduce construction-related emissions to a less-than-significant level. Therefore, the proposed project's construction activities would not violate any air quality standard or contribute substantially to an existing or projected air quality violation, and this impact would be reduced to less than significant.

Operational Emissions

Less-than-significant impact. Maintenance-related traffic associated with DWR vehicles is not expected to significantly escalate or exceed existing levels. Therefore, this impact would be less than significant.

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)?

Less-than-significant impact. The analysis of cumulative effects focuses on whether a specific project would result in cumulatively considerable emissions. By its very nature, air pollution is largely a cumulative impact. The nonattainment status of regional pollutants is a result of past and present development within the SFBAAB, and this regional impact is cumulative rather than being attributable to any one source. A project's emissions may be individually limited, but cumulatively considerable when taken in combination with past, present, and future development projects. The thresholds of significance are relevant to whether a project's individual emissions would result in a considerable incremental contribution to the existing cumulative air quality conditions. If a project's emissions would be less than these threshold levels, the project would not be expected to result in a considerable incremental contribution to the significant cumulative impact.

As discussed earlier, construction-generated and long-term operational emissions would result in a less than significant impact. Therefore, emissions associated with the proposed project would not result in a cumulatively considerable incremental contribution to a significant cumulative impact. This impact would be less than significant.

d) Expose sensitive receptors to substantial pollutant concentrations?

Less-than-significant impact. Land surrounding the project site is primarily agricultural. Pollutants that could be generated by the proposed project, and that could result in adverse health effects on sensitive receptors, include CO, respirable particulate matter (i.e., PM_{10} and $PM_{2.5}$), and toxic air contaminants (TACs). Facilities or land uses that include members of the population that are considered particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Therefore examples of sensitive receptors include schools, hospitals and residential areas. The nearest sensitive receptors would be Mountain House Elementary School which is approximately 1.65 miles northeast of the nearest project component.

Maintenance and construction activities would result in temporary, short-term emissions of particulate exhaust emissions from the off-road heavy-duty diesel equipment (diesel PM). Diesel PM was identified as a TAC by CARB in 1998. The risks estimated for an exposed receptor are higher if a fixed exposure occurs over a longer period of time. According to the Office of Environmental Health Hazard Assessment (OEHHA), health risk assessments should be based on a 70-year exposure period.

As mentioned earlier, the nearest sensitive receptor is approximately 1.65 miles from the project site and nearest roadway. Additionally, the possible sensitive receptor exposure period from the proposed project's construction activities is short and would be less than 1% of the minimum exposure period for a health risk assessment. Haul trucks and off-road equipment would not operate in the immediate proximity of any sensitive receptor or for an extended period of time, therefore, construction-related TAC emissions would not be anticipated to expose sensitive receptors to substantial concentrations of TACs and this impact would be less than significant.

e) Create objectionable odors affecting a substantial number of people?

Less-than-significant impact. Human response to odors is subjective, and sensitivity to odors varies greatly. Typically, odors are regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, headaches).

A potential source of odor during maintenance activities is equipment exhaust. However, equipment exhaust would be localized and generally confined to the immediate area surrounding the proposed project site. The proposed project would use typical construction techniques, and the odors would be temporary and typical of most construction sites. Operation of the proposed project would not have any significant odor sources. Therefore, the project would not create objectionable odors that would affect a substantial number of people; impacts would be less than significant.

3.4 Biological Resources

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
IV. 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 Game, the U.S. Fish and Wildlife Service, or the National Marine Fisheries Service	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Game or the 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?	☐	☐	☐	☒

3.4.1 Environmental Setting

Prior to conducting field surveys, DWR biologists compiled a list of sensitive species and plant communities that may be in this project area (Table 2). The list was developed from a review of the California Natural Diversity Database (CNDDB), Sacramento U.S. Fish and Wildlife Service website (USFWS), and the California Native Plant Society (CNPS) on-line Inventory of Rare and Endangered Plants for the following nine USGS 7.5 minute Quadrangle maps: Brentwood, Woodward Island, Holt, Byron Hot Springs, Clifton Court Forebay, Union Island, Altamont, Midway, and Tracy USGS 7.5' quadrangles.

The complete list includes information on species status, habitat description, whether potential habitat occurs in the project area, and whether impacts to the species are expected due to the project. Expected species impacts were determined through a review of CNDDB Geographic Information System records (Figure 13) and information collected during DWR site surveys. Multiple site visits for this project were conducted by DWR Environmental Scientists between 2011 and 2013.

The project area is surrounded by an unincorporated area of Alameda County with wind farms to the west and south, the Mountain House Conservation bank to the north, and cattle grazing throughout the entire area. The dominant habitat surrounding the project area is non-native grassland with few small drainages consisting of riparian and freshwater emergent vegetation. The public regularly uses Bethany Reservoir and the surrounding levee roads for recreation, including fishing, windsurfing, and biking. The grassland habitats within and surrounding the project area are dominated by nonnative ruderal grasses such as Mediterranean barley (*Hordeum marinum*), wild oats (*Avena fatua*), and canary grass (*Phalaris canariensis*).

The seepage monitoring weir replacement is located on a steep hillside near the east abutment of the Forebay Dam and is surrounded by non-native ruderal grasses, coyote bush (*Baccharis pilularis*), and an adjacent natural drainage which contains cattails. The seepage saturates the surrounding soil and flows into the natural drainage; some wetland vegetation has become established in the temporary weir and newly saturated hillside.

At the site of the palm tree removal, a persistent leak from the Forebay Dam's outlet has created a wetted area at the interim pumping plant that drains into a former natural drainage. Vegetation in the drainage varies, with areas covered in floating duckweed and water fern, patches of cattails, areas of saturated grass, and unvegetated spots occurring along the length of the drainage.

Vegetation surrounding the Dams 1, 2, and 3 drainage ditches consists of non-native ruderal grasses in the uplands and cattails (*Typha angustifolia*) in the perennially wet areas. Portions of the drainages are wet throughout most of the year and are dominated by dense cattails. The drainage ditch at Dam 3 also has tree tobacco (*Nicotiana glauca*), mustard (*Brassica nigra*), and pepperweed (*Lepidium latifolium*).

Wildlife observed within the project area includes many species common to wetland, riparian and grassland habitats, such as Sierran tree frog (*Pseudacris sierra*), Western Meadowlark (*Sturnella neglecta*), Red-winged Blackbird (*Agelaius phoeniceus*), Turkey Vulture (*Cathartes aura*), California ground squirrel (*Otospermophilus beecheyi*), and black-tailed jackrabbit (*Lepus californicus*). Additionally, California red-legged frogs have been observed in toe drains at Dams 1, 2, and 3, and in the drainages below the Forebay Dam (CNDDB 2013, DWR unpublished data), and California tiger salamander has been documented breeding at the Mountain House Conservation Bank, less than ½ mile away from the project area (CNDDB 2013). The project area is at the northern end of the range for San Joaquin kit fox, and kit foxes have been observed near the Action Area as recently as 1998 (CNDDB 2013).

Table 2: Complete CNDDB, USFWS, and CNPS nine quad species table, generated February 2013.

Common Name	Scientific Name	Federal/ State/ CNPS Status	Other Status	Habitat/Range	Effect Determination	Reason for Effect Determination
PLANTS						
Santa Clara thorn-mint	*Acanthomintha lanceolata*	-/-/4.2		Often serpentinite rocky chaparral, cismontane woodland, coastal scrub	No effect	No appropriate habitat present within the project area
large-flowered fiddleneck	*Amsinckia grandiflora*	FE/SE/1B.1		Cismontane woodland, Valley and foothill grassland	Not likely to adversely affect	Available habitat is poor quality, and species is not known or likely to occur in the project area
bent-flowered fiddleneck	*Amsinckia lunaris*	-/-/1B.2	BLM: S	Coastal bluff scrub, cismontane woodland, Valley and foothill grasslands	Not likely to adversely affect	Available habitat is poor quality, and species is not known or likely to occur in the project area
California androsace	*Androsace elongata* ssp. *acuta*	-/-/4.2		Chaparral, cismontane woodland, coastal scrub, meadows and seeps, pinyon and juniper woodland, Valley and foothill grassland	Not likely to adversely affect	Available habitat is poor quality, and species is not known or likely to occur in the project area
alkali milk-vetch	*Astragalus tener* var. *tener*	-/-/1B.2		Playas, Valley and foothill grasslands (adobe clay), vernal pools	Not likely to adversely affect	Available habitat is poor quality, and species is not known or likely to occur in the project area

heartscale	*Atriplex cordulata*	-/-/1B.2	BLM: S	Chenopod scrub, meadows and seeps, Valley and foothill grasslands (sandy)	Not likely to adversely affect	Available habitat is poor quality, and species is not known or likely to occur in the project area
crownscale	*Atriplex coronata* var. *coronata*	-/-/4.2		Alkaline, often clay chenopod scrub, Valley and foothill grassland, vernal pools	May adversely affect	This plant or a more sensitive variety (*vallicola*) has been found in situations similar to the project area, avoidance and minimization measures will be implemented
brittlescale	*Atriplex depressa*	-/-/1B.2		Alkaline, clay chenopod scrub, meadows and seeps, playas, Valley and foothill grassland, vernal pools	Not likely to adversely affect	Available habitat is poor quality, and species is not known or likely to occur in the project area
San Joaquin spearscale	*Atriplex joaquiniana*	-/-/1B.2		Alkaline, chenopod scrub, meadows and seeps, playas, Valley and foothill grassland	Not likely to adversely affect	Available habitat is poor quality, and species is not known or likely to occur in the project area
lesser saltscale	*Atriplex miniscula*	-/-/1B.1		Alkaline, sandy chenopod scrub, playas, Valley and foothill grassland	Not likely to adversely affect	Available habitat is poor quality, and species is not known or likely to occur in the project area
big-scale balsamroot	*Balsamorhiza macrolepis* var. *macrolepis*	-/-/1B.2	BLM: S, FS: S	Chaparral, cismontane woodland, Valley and foothill grassland	Not likely to adversely affect	Available habitat is poor quality, and species is not known or likely to occur in the project area
big tarplant	*Blepharizonia plumosa*	-/-/1B.1		Valley and foothill grassland	Not likely to adversely affect	Available habitat is poor quality, and species is not known or likely to occur in the project area
round-leaved filaree	*California macrophylla*	-/-/1B.1	BLM: S	Cismontane woodland, Valley and foothill grassland	Not likely to adversely affect	Available habitat is poor quality, and species is not known or likely to occur in the project area

Mt. Diablo fairy-lantern	*Calochortus pulchellus*	-/-/1B.2		Grassy slopes within chaparral, cismontane woodland, and riparian woodland	No effect	Project area is outside species' range
bristly sedge	*Carex comosa*	-/-/2.1		Coastal prairie, marshes and swamps (lake margins), Valley and foothill grassland	No effect	Surveys of potential habitat were conducted and the species was not found in the project site.
Lemmon's jewel-flower	*Caulanthus lemmonii*	-/-/1B.2	BLM: S, FS: S	Pinyon and juniper woodland, Valley and foothill grassland	Not likely to adversely affect	Available habitat is poor quality, and species is not known or likely to occur in the project area
Congdon's tarplant	*Centromadia parryi* ssp. *congdonii*	-/-/1B.2	BLM: S	Alkaline Valley and foothill grassland	Not likely to adversely affect	Available habitat is poor quality, and species is not known or likely to occur in the project area
Parry's rough tarplant	*Centromadia parryi* ssp. *rudis*	-/-/4.2		Alkaline, vernally mesic, seeps, sometimes roadsides in Valley and foothill grassland, vernal pools	Not likely to adversely affect	Available habitat is poor quality, and species is not known or likely to occur in the project area
Bolander's water-hemlock	*Cicuta maculate* var. *bolanderi*	-/-/2.1		Coastal, fresh, or brackish water marshes and swamps	No Effect	No appropriate habitat present within the project area
hispid bird's-beak	*Cordylanthus mollis* ssp. *hispidus*	-/-/1B.1	BLM: S	Alkaline meadows and seeps, playas, Valley and foothill grassland	Not likely to adversely affect	Available habitat is poor quality, and species is not known or likely to occur in the project area
palmate-bracted bird's-beak	*Cordylanthus palmatus*	FE/SE/1B.1		Alkaline chenopod scrub, Valley and foothill grassland	Not likely to adversely affect	Available habitat is poor quality, and species is not known or likely to occur in the project area

Livermore tarplant	*Deinandra bacigalupii*	-/-/1B.2		Alkaline meadows and seeps	No effect	No appropriate habitat present within the project area
Hospital Canyon larkspur	*Delphinium californicum* ssp. *interius*	-/-/1B.2		Openings in chaparral, mesic cismontane woodland, coastal scrub	No effect	No appropriate habitat present within the project area
recurved larkspur	*Delphinium recurvatum*	-/-/1B.2	BLM: S	Alkaline chenopod scrub, cismontane woodland, Valley and foothill grassland	Not likely to adversely affect	Available habitat is poor quality, and species is not known or likely to occur in the project area
Delta button-celery	*Eryngium racemosum*	-/SE/1B.1		Vernally mesic clay depressions in riparian scrub	No effect	No appropriate habitat present within the project area
diamond-petaled California poppy	*Eschscholzia rhombipetala*	-/-/1B.1	BLM: S	Alkaline, clay Valley and foothill grassland	Not likely to adversely affect	Available habitat is poor quality, and species is not known or likely to occur in the project area
stinkbells	*Fritillaria agrestis*	-/-/4.2		Clay, sometimes serpentinite chaparral, cismontane woodland, pinyon and juniper woodland, Valley and foothill grassland	Not likely to adversely affect	Available habitat is poor quality, and species is not known or likely to occur in the project area
Diablo helianthella	*Helianthella castanea*	-/-/1B.2	BLM: S	Broad-leafed upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, Valley and foothill grassland	No effect	Project area is outside species' range

hogwallow starfish	*Hesperevax caulescens*	-/-/4.2		Mesic, clay Valley and foothill grassland, shallow vernal pools	Not likely to adversely affect	Available habitat is poor quality, and species is not known or likely to occur in the project area
Brewer's western flax	*Hesperolinon breweri*	-/-/1B.2	BLM: S	Usually serpentinite chaparral, cismontane woodland, Valley and foothill grassland	Not likely to adversely affect	Available habitat is poor quality, and species is not known or likely to occur in the project area
woolly rose-mallow	*Hibiscus lasiocarpos* var. *occidentalis*	-/-/1B.2		Marshes and swamps (freshwater)	No Effect	Surveys of potential habitat were conducted and the species was not found in the project site.
Contra Costa goldfields	*Lasthenia conjugens*	FE, X/-/1B.1		Mesic cismontane woodland, alkaline playas, Valley and foothill grassland, vernal pools	Not likely to adversely affect	No critical habitat present within project area, available habitat is poor quality, and species is not known or likely to occur in the project area
Ferris' goldfields	*Lasthenia ferrisiae*	-/-/4.2		Alkaline, clay vernal pools	No Effect	No appropriate habitat present within the project area
Delta tule pea	*Lathyrus jepsonii* var. *jepsonii*	-/-/1B.2		Freshwater and brackish marshes and swamps	No Effect	Surveys of potential habitat were conducted and the species was not found in the project site.
Mason's lilaeopsis	*Lilaeopsis masonii*	-/R/1B.1		Freshwater and brackish marshes and swamps, riparian scrub	No effect	No intertidal habitat is present within the project area
Delta mudwort	*Limosella subulata*	-/-/2.1		Marshes and swamps	No effect	No intertidal habitat is present within the project area

showy golden madia	*Madia radiata*	-/-/1B.1	BLM: S	Cismontane woodland, Valley and foothill grassland	Not likely to adversely affect	Available habitat is poor quality, and species is not known or likely to occur in the project area
little mousetail	*Myosurus minimus* ssp. *apus*	-/-/3.1		Valley and foothill grassland, alkaline vernal pools	Not likely to adversely affect	Available habitat is poor quality, and species is not known or likely to occur in the project area
adobe navarretia	*Navarretia nigelliformis* ssp. *nigelliformis*	-/-/4.2		Clay vernally mesic Valley and foothill grassland, vernal pools	Not likely to adversely affect	Available habitat is poor quality, and species is not known or likely to occur in the project area
shining navarretia	*Navarretia nigelliformis* ssp. *radians*	-/-/1B.2	BLM: S	Cismontane woodland, Valley and foothill grassland, vernal pools	Not likely to adversely affect	Available habitat is poor quality, and species is not known or likely to occur in the project area
hairless popcorn-flower	*Plagiobothrys glaber*	-/-/1A		Alkaline meadows and seeps, coastal salt marshes and swamps	No Effect	No appropriate habitat present within the project area
marsh skullcap	*Scutellaria galericulata*	-/-/2.2		Lower montane coniferous forest, mesic meadows and seeps, marshes and swamps	No Effect	Surveys of potential habitat were conducted and the species was not found in the project site.
chaparral ragwort	*Senecio aphanactis*	-/-/2.2		Chaparral, cismontane woodland, coastal scrub	No Effect	No appropriate habitat present within the project area
Suisun Marsh aster	*Symphyotrichum lentum*	-/-/1B.2		Brackish and freshwater marshes and swamps	No Effect	Surveys of potential habitat were conducted and the species was not found in the project site.

saline clover	*Trifolium hydrophilum*	-/-/1B.2		Marshes and swamps, Valley and foothill grassland (mesic, alkaline), vernal pools	Not likely to adversely affect	Available habitat is poor quality, and species is not known or likely to occur in the project area
caper-fruited tropidocarpum	*Tropidocarpum capparideum*	-/-/1B.1		Valley and foothill grassland (alkaline hills)	Not likely to adversely affect	Available habitat is poor quality, and species is not known or likely to occur in the project area
INVERTEBRATES						
Conservancy fairy shrimp	*Branchinecta conservatio*	FE/-/-	IUCN: EN	Vernal pools on many landforms and soil types	No effect	Not known to occur in the project area, and no habitat will be affected by the proposed actions
longhorn fairy shrimp	*Branchinecta longiantenna*	FE, X/-/-	IUCN: EN	Vernal pools in grasslands and on sandstone outcrops	No effect	Not known to occur in the project area, and no habitat will be affected by the proposed actions
vernal pool fairy shrimp	*Branchinecta lynchi*	FT, X/-/-		Vernal pools and other ephemeral habitats on many landforms and soil types	No effect	Known to occur near the project area, but no habitat will be affected by the proposed actions
valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	FT/-/-		Elderberry shrubs in riparian and oak savanna habitats	No effect	No host plants occur within the project area
vernal pool tadpole shrimp	*Lepidurus packardi*	FE/-/-	IUCN: EN	Vernal pools and other ephemeral habitats on many landforms and soil types	No effect	Not known to occur in the project area, and no habitat will be affected by the proposed actions
FISH						
North American Green Sturgeon - southern DPS	*Acipenser medirostris*	FT/-/-	AFS: VU, DFG: SSC, IUCN: NT, NMFS: SC	Sacramento River Basin, Sacramento-San Joaquin Delta	No effect	No appropriate habitat present within the project area
Delta Smelt	*Hypomesus transpacificus*	FT, X/SE/-	AFS: TH, IUCN: EN	Rivers and sloughs in the Suisun Bay and the Sacramento-San	No effect	No appropriate habitat present within the project area

				Joaquin Delta		
Steelhead - Central Valley DPS	*Oncorhynchus mykiss irideus*	FT, X/-/-	AFS: TH	Central Valley rivers and streams, Delta, SF Bay estuary	No effect	No appropriate habitat present within the project area
Chinook Salmon - Central Valley spring-run ESU	*Oncorhynchus tshawytscha*	FT/ST/-	AFS: TH	Central Valley rivers and streams, Delta, SF Bay estuary	No effect	No appropriate habitat present within the project area
Chinook Salmon - Sacramento River winter-run ESU	*Oncorhynchus tshawytscha*	FE/SE/-	AFS: EN	Central Valley rivers and streams, Delta, SF Bay estuary	No effect	No appropriate habitat present within the project area
AMPHIBIANS						
California tiger salamander	*Ambystoma californiense*	FT, X/ST/-	IUCN: VU	Grasslands and oak savannas with vernal pools or seasonal ponds	May adversely affect	No critical habitat within project area; however, species is known to breed near the project area and could be using upland habitat within the project area; mitigation measures will be implemented
foothill yellow-legged frog	*Rana boylii*	-/-/-	BLM: S, DFG: SSC, FS: S , IUCN: NT,	Rocky streams and rivers in forest, chaparral, and woodlands	No effect	No habitat present within the project area
California red-legged frog	*Rana draytonii*	FT, X/-/-	DFG: SSC, IUCN: VU	Still water in streams and ponds with deep pools and emergent vegetation in grasslands, woodlands, and forests	May adversely affect	Project is located within critical habitat (CCS-2B) and species is known to occupy the area; mitigation measures will be implemented
western spadefoot	*Spea hammondii*	-/-/-	BLM: S, DFG: SSC, IUCN: NT	Grasslands, open chaparral, and woodlands with vernal pools or other ephemeral breeding habitat	Not likely to adversely affect	Suitable habitat is present within project area, but species is not known to occupy the area
REPTILES						
silvery legless	*Anniella pulchra*	-/-/-	DFG: SSC,	Vegetated areas of	No effect	No habitat present within

lizard	*pulchra*		FS: S	beach dunes, chaparral, pine-oak woodlands, desert scrub, sandy washes, and stream terraces with sycamores, cottonwoods, or oaks		the project area
western pond turtle	*Emys* (= *Actinemys*) *marmorata*	-/-/-	BLM: S, DFG: SSC, FS: S, IUCN: VU	Ponds, lakes, rivers, streams, creeks, marshes, and irrigation ditches with abundant vegetation in woodland, forest, and grassland	No effect	No suitable habitat in the project area
San Joaquin whipsnake	*Masticophis flagellum ruddocki*	-/-/-	DFG: SSC	Open, dry, treeless areas, including grassland and saltbush scrub	Not likely to adversely affect	Project area on fringe of species' range, and species is not known to occur in the project area
Alameda whipsnake	*Masticophis lateralis euryxanthus*	FT, X/ST/-		Open areas in canyons, rocky hillsides, chaparral scrublands, open woodlands, pond edges, stream courses in a small area within Contra Costa and Alameda Counties	No effect	Project area is outside the species' range
coast horned lizard	*Phrynosoma blainvillii*	-/-/-	BLM: S, DFG: SSC, FS: S, IUCN: LC	Open areas of sandy soil and low vegetation in grasslands, coniferous forests, woodlands, and chaparral	Not likely to adversely affect	Available habitat is poor quality, and species is not known or likely to occur in the project area
giant garter snake	*Thamnophis gigas*	FT/ST/-	IUCN: VU	Marshes, sloughs, drainage canals, and irrigation ditches, especially around rice	No effect	The project is outside of the known range for this species.

				fields, and occasionally in slow-moving creeks		
BIRDS						
Tricolored Blackbird (nesting colony)	*Agelaius tricolor*	-/-/-	ABC: WLBCC, BLM: S, DFG: SSC, FWS: BCC, IUCN: EN	Nest in a variety of substrates, most are either flooded or armored, forage in shrub lands, pastures, and wetlands	No effect	No nesting habitat
Golden Eagle (nesting & wintering)	*Aquila chrysaetos*	-/FP/-	BLM: S, CDF: S, DFG: WL, FWS: BCC, IUCN: LC	Forests, canyons, shrub lands, grasslands, and oak woodlands	No effect	Little available habitat (foraging only) within the project area
Burrowing Owl (burrow sites & some wintering sites)	*Athene cunicularia*	-/-/-	BLM: S, DFG: SSC, FWS: BCC, IUCN: LC	Grasslands, deserts, and scrublands characterized by low-growing vegetation and suitable burrows	Not likely to adversely affect	Species is known to occur in the project vicinity but mitigation measures will be implemented
Swainson's Hawk (nesting)	*Buteo swainsoni*	-/ST/-	ABC: WLBCC, BLM: S, FS: S, FWS: BCC, IUCN: LC	Nest peripheral to riparian systems or lone trees in agricultural fields or along roadsides when adjacent to suitable foraging habitat such as grasslands or agricultural fields, particularly alfalfa	Not likely to adversely affect	There are some trees within the project vicinity that could provide nesting habitat; mitigation measures will be implemented.
Northern Harrier (nesting)	*Circus cyaneus*	-/-/-	DFG: SSC, IUCN: LC	Open areas such as freshwater and brackish marshes, wet meadows, grasslands, pasture	No effect	Available habitat is poor quality, and species is not known or likely to nest in the project area
White-tailed Kite (nesting)	*Elanus leucurus*	-/FP/-	BLM: S, IUCN: LC	Open areas such as grasslands, oak	Not likely to adversely affect	Minimal poor quality nesting habitat is present

				savannahs and woodlands, scrublands, and marshes		within the project area
Loggerhead Shrike (nesting)	*Lanius ludovicianus*	-/-/-	DFG: SSC, FWS: BCC, IUCN: LC	Open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches	No effect	Minimal poor quality nesting habitat is present within the seepage monitoring weir area but work in that area will be outside of nesting season
California Black Rail	*Laterallus jamaicensis coturniculus*	-/ST, FP/-	ABC: WLBCC, BLM: S, FWS: BCC, IUCN: NT	Saline, brackish, and freshwater emergent wetlands	No effect	No nesting habitat is present within the project area.
MAMMALS						
pallid bat	*Antrozous pallidus*	-/-/-	BLM: S, DFG: SSC, FS: S, IUCN: LC, WBWG: H	Roost in rock crevices, old buildings, bridges, caves, mines, and hollow trees within grasslands, shrub lands, woodlands, and forests	No effect	No roosting habitat will be affected by the proposed actions, and foraging habitat will not be impacted
western mastiff bat	*Eumops perotis californicus*	-/-/-	BLM: S, DFG: SSC, WBWG: H	Roost in crevices in cliff faces and rocks, high buildings, trees, and tunnels in a variety of open, semi-arid to arid habitats	No effect	Project area is outside of species' roosting range, and foraging habitat will not be impacted
western red bat	*Lasiurus blossevillii*	-/-/-	DFG: SSC, FS: S, IUCN: LC, FS: S, WBWG: H	Roost in riparian habitats, particularly mature stands of cottonwood, sycamore, or oak greater than 50 m wide, often in edge habitats adjacent to streams, fields, or	No effect	No roosting habitat will be affected by the proposed actions, and foraging habitat will not be impacted

				urban areas		
hoary bat	*Lasiurus cinereus*	-/-/-	IUCN: LC, WBWG: M	Roost in woodlands and forests with medium to large trees and dense foliage, but can be found in suburbs with old, large trees	No effect	No roosting habitat will be affected by the proposed actions, and foraging habitat will not be impacted
American badger	*Taxidea taxus*	-/-/-	DFG: SSC, IUCN: LC	Variety of open, arid habitats, most commonly associated with grasslands, savannas, mountain meadows, and open areas of desert scrub	Not likely to adversely affect	Available habitat is poor quality, and species is not known or likely to occur in the project area
San Joaquin kit fox	*Vulpes macrotis mutica*	FE/ST/-		Variety of habitats, primarily grasslands and scrublands, with loose-textured soil	Not likely to adversely affect	Available habitat is poor quality, and species has not been known or likely to occur in the project area since 2003.

Federal/State/California Native Plant Society (CNPS) Status Key:
FE = listed as Endangered under the federal Endangered Species Act
FT = listed as Threatened under the federal Endangered Species Act
X = Critical Habitat has been designated under the federal Endangered Species Act
SE = listed as Endangered under the California Endangered Species Act
ST = listed as Threatened under the California Endangered Species Act
R = listed as Rare under the California Native Plant Protection Act
FP = listed as Fully Protected under the California Fish and Game Code
1A = ranked as presumed extinct in California by the CNPS
1B.1 = ranked as rare, threatened, or endangered in California and elsewhere (seriously threatened in CA) by the CNPS
1B.2 = ranked as rare, threatened, or endangered in California and elsewhere (fairly threatened in CA) by the CNPS
2.1 = ranked as rare, threatened, or endangered in California, but more common elsewhere (seriously threatened in CA) by the CNPS
2.2 = ranked as rare, threatened, or endangered in California, but more common elsewhere (fairly threatened in CA) by the CNPS
3.1 = ranked as plants requiring more information in California that are under review (seriously threatened in CA) by the CNPS
4.2 = ranked as plants having a limited distribution within California that should be watched (fairly threatened in CA) by the CNPS

Other Status Key:
ABC: WLBCC = American Bird Conservancy's Watch List of Birds of Conservation Concern
AFS: EN = American Fisheries Society Endangered

AFS: TH = American Fisheries Society Threatened
AFS: VU = American Fisheries Society Vulnerable
BLM: S = U.S. Bureau of Land Management Sensitive
CDF: S = California Department of Forestry and Fire Protection Sensitive
DFG: SSC = California Department of Fish and Game Species of Special Concern
DFG: WL = California Department of Fish and Game Watch List of Birds Species of Special Concern
FS: S = U.S.D.A. Forest Service Sensitive
FWS: BCC = U.S. Fish and Wildlife Service Birds of Conservation Concern
IUCN: EN = International Union for Conservation of Nature Endangered
IUCN: LC = International Union for Conservation of Nature Least Concern
IUCN: NT = International Union for Conservation of Nature Near Threatened
IUCN: VU = International Union for Conservation of Nature Vulnerable
NMFS: SC = National Marine Fisheries Service Species of Concern
FS: S = U.S.D.A. Forest Service Sensitive
FWS: BCC = U.S. Fish and Wildlife Service Birds of Conservation Concern
WBWG: H = Western Bat Working Group High Priority
WBWG: M = Western Bat Working Group Medium Priority

* List was compiled from February 2013 CNDDB, FWS, and CNPS searches of 9 quads around Bethany Reservoir (Altamont, Brentwood, Byron Hot Springs, Clifton Court Forebay, Holt, Midway, Tracy, Union Island, Woodward Island) – western red bat was included based on expert advice that it could be in the area, and seven species (midvalley fairy shrimp, curved-foot hygrotus diving beetle, California linderiella, molestan blister beetle, Antioch andrenid bee, great blue heron rookeries, San Joaquin pocket mouse, Cooper's Hawk, Ferruginous Hawk, California Horned lark, and Prairie Falcon) were removed from the list of species evaluated because they had no special status ranking by any agencies or organizations with jurisdiction over this project area (e.g., CDF, BLM, or FS listed sensitive only).

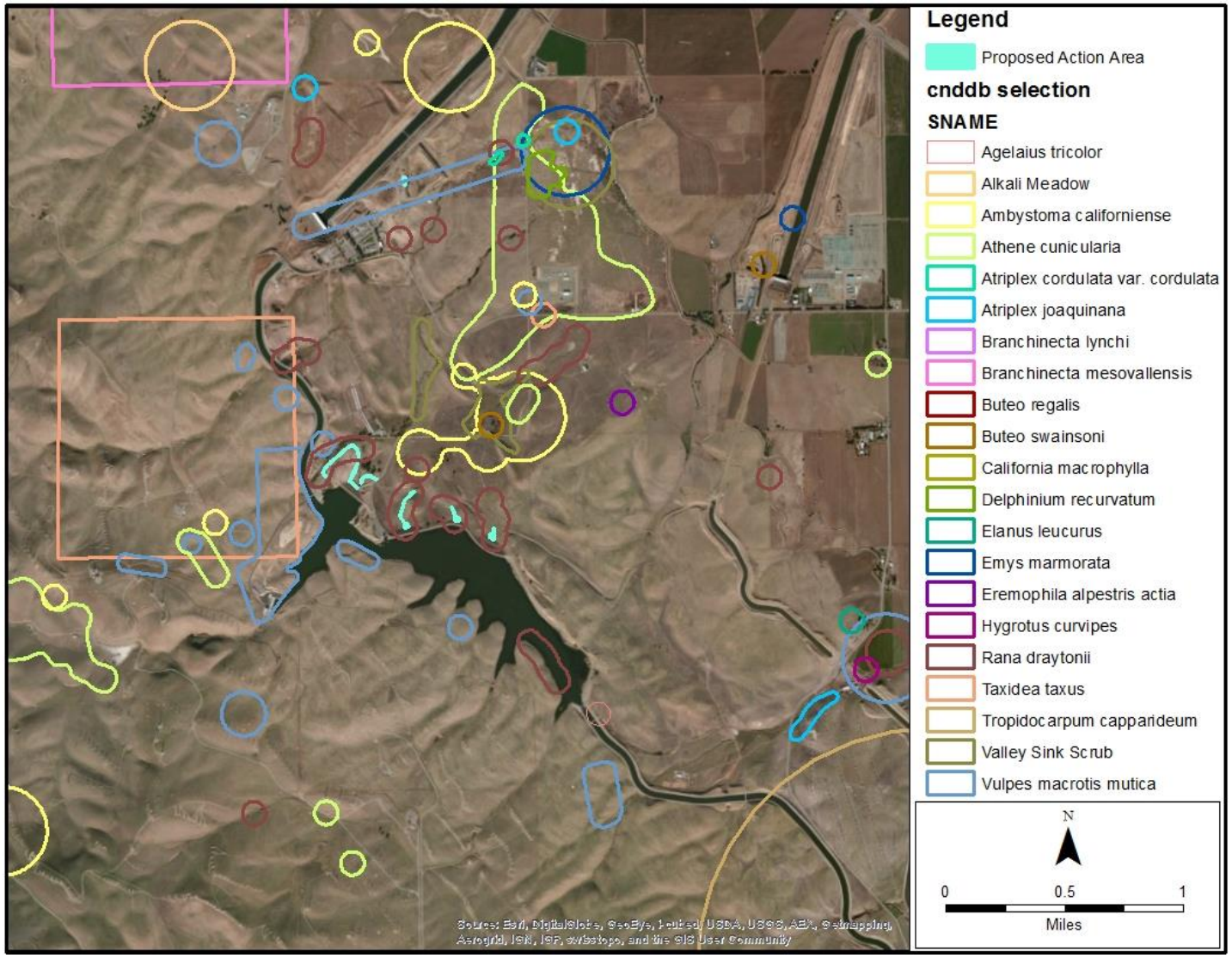

Figure 17: Map of all CNDDB occurrences within approximately 2 miles of the project area, except for Eschscholzia rhombipetala, which has an occurrence that covers the entire mapped area.

3.4.1.1 Special Status Plants

There a no plant species with "may adversely affect" determinations; there are 29 plant species with "not likely to adversely affect" determinations: large-flowered fiddleneck, bent-flowered fiddleneck, California androsace, alkali milk-vetch, heartscale, crownscale, brittlescale, San Joaquin spearscale, lesser saltscale, big-scale balsamroot, big tarplant, round-leaved filaree, Lemmon's jewel-flower, Congdon's tarplant, Parry's rough tarplant, hispid bird's-beak, palmate-bracted bird's-beak, recurved larkspur, diamond-petaled California poppy, stinkbells, hogwallow starfish, Brewer's western flax, Contra Costa goldfields, showy golden madia, adobe navarretia, shining navarretia, chaparral ragwort, saline clover, and caper-fruited tropidocarpum. This section includes species accounts for each of these plant species and further discusses the effects determinations made in Table 2.

Large-Flowered Fiddleneck (*Amsinckia grandiflora*)

Large-flowered fiddleneck is currently known from fewer than five locations in northwestern San Joaquin Valley at elevations between 900 and 1,800 feet (CNPS 2013). The species is presumed extinct in Contra Costa County (Baldwin et al. 2012). Habitat for this annual herb includes cismontane woodland and Valley and foothill grassland and its flowering period is typically March – May. The closest CNDDB record is 8.4 miles northwest of the project footprint.

This project is not likely to adversely affect large-flowered fiddleneck because the species is not known or likely to occur in the project area, as the available grassland habitat is of poor quality for this species due to the dominance of non-native ruderal grasses and forbs. Additionally, the project area is located on the western edge of the known range for this species, further decreasing the likelihood of its presence.

Bent-Flowered Fiddleneck (*Amsinckia lunaris*)

Bent-flowered fiddleneck is known to occur in the North Coast Ranges, southwest Sacramento Valley, Central Coast (Marin and Santa Cruz Counties), and the San Francisco Bay Area (Baldwin et al. 2012) at elevations between 10 and 1,640 feet (CNPS 2013). Habitat for this annual herb includes coastal bluff scrub, cismontane woodland, and Valley and foothill grasslands. The flowering period is typically March - June. The closest CNDDB record of bent-flowered fiddleneck is 23.3 miles west of the project footprint.

This project is not likely to adversely affect bent-flowered fiddleneck because the species is not known or likely to occur in the project area, as the available grassland habitat is of poor quality for this species due to the dominance of non-native ruderal grasses and forbs. Additionally, the project area is located on the eastern edge of the known range for this species, further decreasing the likelihood of its presence.

California Androsace (*Androsace elongata* ssp*. acuta*)

California Androsace is currently known to occur in the Inner North Coast Ranges, Cascade Ranges, southern Sierra Nevada Foothills, Great Central Valley, San Francisco Bay Area, Inner South Coast Ranges, South Coast, Western Transverse Ranges, San Bernardino Mountains,

Peninsular Ranges, Oregon, Nevada, and Baja California at elevations of less than 3,940 feet (Baldwin et al. 2012). Habitat for this annual herb includes chaparral, cismontane woodland, coastal scrub, meadows and seeps, pinyon and juniper woodland, and Valley and foothill grasslands. The flowering period is typically February - June. CNPS list 4 plants are not included in CNDDB; therefore, the nearest occurrence of the plant to the project site is unknown.

This project is not likely to adversely affect California Androsace because the species is not known or likely to occur in the project area, as the available grassland habitat is of poor quality for this species due to the dominance of non-native ruderal grasses and forbs.

Alkali Milk-Vetch (*Astragalus tener* var*. tener*)
Alkali milk-vetch is currently known to occur in the southern Sacramento Valley, northern San Joaquin Valley, eastern San Francisco Bay Area (where it is mostly extirpated), and Inner South Coast Ranges (Baldwin et al. 2012) at elevations of less than 200 feet (CNPS 2013). Habitat for this annual herb includes playas, Valley and foothill grasslands (adobe clay), and vernal pools. The flowering period is typically March - June. The closest CNDDB record of alkali milk-vetch is 3.5 miles north of the project footprint.

This project is not likely to adversely affect alkali milk-vetch because the species is not known or likely to occur in the project area, as the available grassland habitat is of poor quality for this species due to the dominance of non-native ruderal grasses and forbs and the lack of alkaline vernal pools and scalds which are favored by this species.

Heartscale (*Atriplex cordulata*)
Heartscale is currently known to occur in the Great Central Valley (Baldwin et al. 2012) at elevations of less than 1,640 feet (CNPS 2013). Habitat for this annual herb includes chenopod scrub, meadows and seeps, and Valley and foothill grasslands. The flowering period is typically April - October. The closest CNDDB record of heartscale is 1.2 miles north of the project footprint.

This project is not likely to adversely affect heartscale because the species is not known or likely to occur in the project area, as the available grassland habitat is of poor quality for this species due to the dominance of non-native ruderal grasses and forbs and the lack of alkaline vernal pools and scalds which are favored by this species.

Crownscale (*Atriplex coronata* var*. coronata*)
Crownscale is currently known to occur in the southern Sacramento Valley and San Joaquin Valley (Baldwin et al. 2012) at elevations of less than 1,940 feet (CNPS 2013). Habitat for this annual herb includes alkaline, often clay, chenopod scrub, Valley and foothill grassland, and vernal pools. The flowering period is typically March - October. CNPS list 4 plants are not included in CNDDB; however, Crownscale has been detected in botanical surveys conducted at Clifton Court Forebay, which is approximately 3.11 miles from the project footprint, and in similarly disturbed habitat situations.

This project is not likely to adversely affect crownscale because the species is not known or likely to occur in the project area. Alkaline scalds, similar to those where Crownscale was detected at Clifton Court Forebay are not present at Bethany Reservoir, and the available grassland habitat is of poor quality for this species due to the dominance of non-native ruderal grasses and forbs.

Brittlescale (*Atriplex depressa*)
Brittlescale is currently known to occur in the southwest San Joaquin Valley (Carrizo Plain) at elevations of less than 1,050 feet (Baldwin et al. 2012). Habitat for this annual herb includes alkaline, clay chenopod scrub, meadows and seeps, playas, Valley and foothill grassland, and vernal pools. The flowering period is typically April - October. The closest CNDDB record of brittlescale is 2.2 miles northwest of the project footprint.

This project is not likely to adversely affect brittlescale because the species is not known or likely to occur in the project area, as the available grassland habitat is of poor quality for this species due to the dominance of non-native ruderal grasses and forbs and the lack of alkaline vernal pools and scalds which are favored by this species.

San Joaquin Spearscale (*Atriplex joaquiniana*)
San Joaquin spearscale is currently known to occur in the Inner North Coast Ranges, Great Central Valley, Central Coast, San Francisco Bay Area, and the eastern slope of the Inner South Coast Ranges at elevations of less than 2,760 feet (Baldwin et al. 2012). Habitat for this annual herb includes alkaline, chenopod scrub, meadows and seeps, playas, and Valley and foothill grassland. The flowering period is typically April - October. The closest CNDDB record of San Joaquin spearscale is 1.4 miles north of the project footprint.

This project is not likely to adversely affect San Joaquin spearscale because the species is not known or likely to occur in the project area. The species preferred alkaline vernal pool habitat is not present in the project area, and the available grassland habitat is of poor quality due to the dominance of non-native ruderal grasses and forbs.

Lesser Saltscale (*Atriplex miniscula*)
Lesser saltscale is currently known to occur in the San Joaquin Valley (Baldwin et al. 2012) at elevations of less than 660 feet (CNPS 2013). Habitat for this annual herb includes alkaline, sandy chenopod scrub, playas, and Valley and foothill grassland. The flowering period is typically April - October. The closest CNDDB record of lesser saltscale is 4.2 miles southwest of the project footprint.

This project is not likely to adversely affect lesser saltscale because the species is not known or likely to occur in the project area. The species preferred alkaline scrub or playa habitat is not present in the project area, and the available grassland habitat is of poor quality for this species due to the dominance of non-native ruderal grasses and forbs.

Big-Scale Balsamroot (*Balsamorhiza macrolepis* var*. macrolepis*)

Big-scale balsamroot is currently known to occur in the Sierra Nevada Foothills, central High Sierra Nevada, Sacramento Valley, and east San Francisco Bay Area (Baldwin et al. 2012) at elevations of less than 5,100 feet (CNPS 2013). Habitat for this perennial herb includes chaparral, cismontane woodland, and Valley and foothill grassland. The flowering period is typically March - July. The closest CNDDB record of big-scale balsamroot is 10.0 miles southwest of the project footprint.

This project is not likely to adversely affect big-scale balsamroot because the species is not known or likely to occur in the project area, as the available grassland habitat is of poor quality for this species due to the dominance of non-native ruderal grasses and forbs. Additionally, this species is often associated with serpentine soils, which are not present in the project footprint (Calflora 2013).

Big Tarplant (*Blepharizonia plumosa*)
Big tarplant is currently known to occur in the northwest San Joaquin Valley and eastern San Francisco Bay Area at elevations of less than 1,640 feet (Baldwin et al. 2012). Habitat for this annual herb includes Valley and foothill grassland. The flowering period is typically July - November. The closest CNDDB record of big tarplant is 5.4 miles southeast of the project footprint.

This project is not likely to adversely affect big tarplant because the species is not known or likely to occur in the project area, as the available grassland habitat is of poor quality for this species due to the dominance of non-native ruderal grasses and forbs.

Round-Leaved Filaree (*California macrophylla*)
Round-leaved filaree is currently known to occur in the Inner North Coast Ranges, southern Sierra Nevada Foothills, Great Central Valley, and Central Western California at elevations of less than 3,940 feet (Baldwin et al. 2012). Habitat for this annual herb includes cismontane woodland and Valley and foothill grassland. The flowering period is typically March - July. The closest CNDDB record of round-leaved filaree is 1.6 miles southeast of the project footprint.

This project is not likely to adversely affect round-leaved filaree because the species is not known or likely to occur in the project area, as the available grassland habitat is of poor quality for this species due to the dominance of non-native ruderal grasses and forbs.

Lemmon's Jewel-Flower (*Caulanthus lemmonii*)
Lemmon's jewel-flower is currently known to occur in the southwestern San Joaquin Valley, southeastern San Francisco Bay Area, eastern Outer South Coast Ranges, and Inner South Coast Ranges (Baldwin et al. 2012) at elevations between 260 and 4,000 feet (CNPS 2013). Habitat for this annual herb includes pinyon and juniper woodland and Valley and foothill grassland. The flowering period is typically March - May. The closest CNDDB record of Lemmon's jewel-flower is 9.0 miles south of the project footprint.

This project is not likely to adversely affect Lemmon's jewel-flower because the species is not known or likely to occur in the project area, as the available grassland habitat is of poor quality for this species due to the dominance of non-native ruderal grasses and forbs.

Congdon's Tarplant (*Centromadia parri* ssp*. congdonii*)
Congdon's tarplant is currently known to occur in Central Western California at elevations of less than 980 feet (Baldwin et al. 2012). Habitat for this annual herb includes alkaline Valley and foothill grassland. The flowering period is typically May - November. The closest CNDDB record of Congdon's tarplant is 3.8 miles southwest of the project footprint.

This project is not likely to adversely affect Congdon's tarplant because the species is not known or likely to occur in the project area. Recorded occurrences in the area were found in alkaline, white clay wetlands which do not occur in the project area, and the available grassland habitat is of poor quality for this species due to the dominance of non-native ruderal grasses and forbs.

Parry's Rough Tarplant (*Centromadia parryi* ssp*. rudis*)
Parry's rough tarplant is currently known to occur in the southern Inner North Coast Ranges (rare), and northern and central Great Central Valley at elevations of less than 1,640 feet (Baldwin et al. 2012). Habitat for this annual herb includes alkaline, vernally mesic seeps, sometimes roadsides in Valley and foothill grassland, and vernal pools. The flowering period is typically May - October. CNPS list 4 plants are not included in CNDDB; therefore, the nearest occurrence of the plant to the project footprint is unknown.

This project is not likely to adversely affect Parry's rough tarplant because the species is not known or likely to occur in the project area, as the available grassland habitat is of poor quality for this species due to the dominance of non-native ruderal grasses and forbs.

Recurved Larkspur (*Delphinium recurvatum*)
Recurved larkspur is currently known to be extirpated in the Sacramento Valley but known to occur in the San Joaquin Valley, southern Inner South Coast Ranges (Caliente Range), and western Mojave Desert (Baldwin et al. 2012) at elevations of 10 - 2,460 feet (CNPS 2013). Habitat for this perennial herb includes alkaline chenopod scrub, cismontane woodland, and Valley and foothill grassland. The flowering period is typically March - June. The closest CNDDB record of recurved larkspur is 1.2 miles north of the project footprint.

This project is not likely to adversely affect recurved larkspur because the species is not known or likely to occur in the project area, as the available grassland habitat is of poor quality for this species due to the dominance of non-native ruderal grasses and forbs.

Diamond-Petaled California Poppy (*Eschscholzia rhombipetala*)
Diamond-petaled California poppy is currently known to occur in the western San Joaquin Valley (Carrizo Plain, San Luis Obispo County) and east San Francisco Bay Area (Corral Hollow, Alameda County), and is formerly known from the Inner North Coast Ranges, eastern Outer

South Coast Ranges, and Inner South Coast Ranges (Baldwin et al. 2012) at elevations of less than 3,200 feet (CNPS 2013). Habitat for this annual herb includes alkaline, clay Valley and foothill grassland. The flowering period is typically March - April. The closest CNDDB record of diamond-petaled California poppy is within the project footprint; however, this record is from 1888, and the polygon covers a 5 mile radius due to lack of specific locational information. Additionally, the occurrence report states that this species is possibly extirpated from the area.

This project is not likely to adversely affect diamond-petaled California poppy because the species is not known or likely to occur in the project area, as the available grassland habitat is of poor quality for this species due to the dominance of non-native ruderal grasses and forbs.

Stinkbells (*Fritillaria agrestis*)
Stinkbells are currently known to occur in the Outer North Coast Ranges (Mendocino County), Sierra Nevada Foothills, Great Central Valley, and Central Western California (Baldwin et al. 2012) at elevations of less than 5,100 feet (CNPS 2013). Habitat for this perennial bulbiferous herb includes clay, sometimes serpentinite chaparral, cismontane woodland, pinyon and juniper woodland, and Valley and foothill grassland. The flowering period is typically March - June. While stinkbells are a CNPS list 4 plant, there are occurrences of it recorded in CNDDB. The closest CNDDB record of stinkbells is 6.0 miles northwest of the project footprint.

This project is not likely to adversely affect stinkbells because the species is not known or likely to occur in the project area, as the available grassland habitat is of poor quality for this species due to the dominance of non-native ruderal grasses and forbs.

Hogwallow Starfish (*Hesperevax caulescens*)
Hogwallow starfish is currently known to occur in the Inner North Coast Ranges, Cascade Range Foothills, northern and southern Sierra Nevada Foothills, Great Central Valley, Outer South Coast Ranges, and southwestern Peninsular Ranges at elevations of less than 1,640 feet (Baldwin et al. 2012). Habitat for this annual herb includes mesic, clay Valley and foothill grassland, and shallow vernal pools. The flowering period is typically March - June. CNPS list 4 plants are not included in CNDDB; however, previous DWR botany surveys have identified hogwallow starfish at the Byron Airport, approximately 3 miles north of the project footprint.

This project is not likely to adversely affect hogwallow starfish because the species is not known or likely to occur in the project area, as the available grassland habitat is of poor quality for this species due to the dominance of non-native ruderal grasses and forbs.

Brewer's Western Flax (*Hesperolinon breweri*)
Brewer's western flax is currently known to occur in the southern Inner North Coast Ranges (Napa and Solano Counties) and northeastern San Francisco Bay Area (Mount Diablo, Contra Costa Counties) (Baldwin et al. 2012) at elevations between 100 - 2,950 feet (CNPS 2013). Habitat for this annual herb includes usually serpentinite chaparral, cismontane woodland, and Valley and foothill grassland. The flowering period is typically May - July. The closest CNDDB record of Brewer's western flax is 7.3 miles northwest of the project footprint.

This project is not likely to adversely affect Brewer's western flax because the species is not known or likely to occur in the project area, as the available grassland habitat is of poor quality for this species due to the dominance of non-native ruderal grasses and forbs.

Contra Costa Goldfields (*Lasthenia conjugens*)
Contra Costa goldfields are formerly known to occur in the North Coast, Outer North Coast Ranges, and South Coast, and currently known to occur in the southern Sacramento Valley (Napa and Solano Counties), Central Coast, and San Francisco Bay Area (Baldwin et al. 2012) at elevations of less than 1,540 feet (CNPS 2013). Habitat for this annual herb includes mesic cismontane woodland. The flowering period is typically March - June. The closest CNDDB record of Contra Costa goldfields is 17.0 miles northwest of the project footprint.

This project is not likely to adversely affect Contra Costa goldfields because the species is not known or likely to occur in the project area, as the available grassland habitat is of poor quality for this species due to the dominance of non-native ruderal grasses and forbs.

Showy Golden Madia (*Madia radiata*)
Showy golden madia is currently known to occur in the San Joaquin Valley, San Francisco Bay Area, and Inner South Coast Ranges at elevations between 70 and 3,940 feet (Baldwin et al. 2012). Habitat for this annual herb includes cismontane woodland and Valley and foothill grassland. The flowering period is typically March - May. The closest CNDDB record of showy golden madia is 10.7 miles southeast of the project footprint.

This project is not likely to adversely affect showy golden madia because the species is not known or likely to occur in the project area, as the available grassland habitat is of poor quality for this species due to the dominance of non-native ruderal grasses and forbs.

Adobe Navarretia *(Navarretia nigelliformis* ssp*. nigelliformis)*
Adobe navarretia is currently known to occur in the Inner North Coast Ranges, Sierra Nevada Foothills, Tehachapi Mountains Area, Great Central Valley, and South Coast Ranges at elevations between 30 and 3,280 feet (Baldwin et al. 2012). Habitat for this annual herb includes clay, vernally mesic Valley and foothill grassland and vernal pools. The flowering period is typically April - June. CNPS list 4 plants are not included in CNDDB; therefore, the nearest occurrence of the plant to the project site is unknown.

This project is not likely to adversely affect adobe navarretia because the species is not known or likely to occur in the project area as the available grassland habitat is of poor quality for this species due to the dominance of non-native ruderal grasses and forbs.

Shining Navarretia *(Navarretia nigelliformis* ssp*. radians)*
Shining navarretia is currently known to occur in the South Coast Ranges (Baldwin et al. 2012) at elevations between 250 and 3,280 feet (CNPS 2013). Habitat for this annual herb includes cismontane woodland, Valley and foothill grassland, and vernal pools. The flowering period is

typically April - July. The closest CNDDB record of shining navarretia is 7.4 miles southeast of the project footprint.

This project is not likely to adversely affect shining navarretia because the species is not known or likely to occur in the project area, as the available grassland habitat is of poor quality for this species due to the dominance of non-native ruderal grasses and forbs.

Saline Clover (*Trifolium hydrophilum)*
Saline clover is currently known to occur in the Sacramento Valley, northwestern San Joaquin Valley, and central Western California at elevations of less than 980 feet (Baldwin et al. 2012). Habitat for this annual herb includes marshes and swamps, Valley and foothill grassland (mesic, alkaline), and vernal pools. The flowering period is typically April - June. The closest CNDDB record of saline clover is 7.6 miles southwest of the project footprint.

This project is not likely to adversely affect saline clover because the species is not known or likely to occur in the project area, as the available grassland habitat is of poor quality for this species due to the dominance of non-native ruderal grasses and forbs.

Caper–fruited Tropidocarpum *(Tropidocarpum capparideum)*
Caper-fruited tropidocarpum is currently known to occur in the northwestern San Joaquin Valley and Outer South Coast Ranges at elevations of less than 1,490 feet (CNPS 2013). Habitat for this annual herb includes Valley and foothill grassland (alkaline hills). The flowering period is typically March - April. The closest CNDDB record of caper-fruited tropidocarpum is 1.6 miles southeast of the project footprint.

This project is not likely to adversely affect caper-fruited tropidocarpum because the species is not known or likely to occur in the project area, as the available grassland habitat is of poor quality for this species due to the dominance of non-native ruderal grasses and forbs.

3.4.1.2 Special Status Wildlife

There a two wildlife species with “may adversely affect” determinations: California tiger salamander and California red-legged frog. There are eight wildlife species with “not likely to adversely affect” determinations: western spadefoot, San Joaquin whipsnake, coast horned lizard, Burrowing Owl, Swainson’s Hawk, White-tailed Kite, American badger, and San Joaquin kit fox. This section includes species accounts for each of these ten wildlife species and further discusses the effects determinations made in Table 2.

California Tiger Salamander (*Ambystoma californiense*)
California tiger salamanders are restricted to vernal pools and seasonal ponds and surrounding uplands, including many constructed stock ponds, in grassland and oak savannah plant communities, predominantly from sea level to 2,000 feet, in central California. They are known to disperse long distances, possibly greater than 1.3 miles (Orloff 2011), into uplands to find suitable small mammal burrows for aestivation; however, their density decreases exponentially with distance from breeding habitat (Searcy and Shaffer 2008, Trenham and Shaffer 2005). The

closest recorded CNDDB occurrence of California tiger salamanders is a breeding pond approximately half a mile northeast from the project footprint.

No vernal pools or stock ponds will be affected by the proposed project. CTS are not known to breed within the drainage ditches themselves, but the habitat may have limited potential for breeding, despite the dense cover of emergent vegetation. The species could also be utilizing the upland habitat within the project area for aestivation. This project may adversely affect California tiger salamander but avoidance, minimization, and mitigation measures will be implemented to reduce impacts to less than significant (See Mitigation Measures Bio-1 and Bio-3 below).

California Red-Legged Frog (*Rana draytonii*)
California red-legged frogs are restricted to California and Baja California, Mexico, at elevations ranging from sea level to approximately 5,000 ft. They require a variety of habitat elements, including aquatic breeding areas embedded within a matrix of riparian and upland dispersal habitats. California red-legged frogs breed in pools and backwaters within streams and creeks, ponds, marshes, springs, sag ponds, dune ponds, and lagoons. They are also known to breed in artificial impoundments such as stock ponds. The largest densities of California red-legged frogs are associated with deepwater pools (greater than 2 1/3 feet deep) with dense stands of overhanging willows and an intermixed fringe of cattails. Well-vegetated terrestrial areas within the riparian corridor may provide important sheltering habitat during winter, and some may aestivate in small mammal burrows and moist leaf litter during the summer. While most of the frogs remain within or very near (within 100 feet) their breeding ponds or pools (Bulger et al. 2003, Fellers and Kleeman 2007, Tatarian 2008), some have been observed moving up to 1.75 miles straight-line distance between suitable aquatic habitats (provided that there is intervening aquatic habitat along the way) and have been documented in coastal forests and grasslands dispersing into uplands as far away as 0.3 miles from aquatic habitat (Bulger et al. 2003). Occurrences of California red-legged frogs have been recorded in CNDDB within the project footprint in the drainage ditches. Day- and night-surveys were conducted on October 15, 2012 at the interim plant drainage and confirmed that California red-legged frogs are present there as well.

Although the project activities have been designed to minimize impacts to the California red-legged frog, harassment related to removing frogs from the project area, or direct take could potentially occur. Therefore, the project may adversely affect California red-legged frogs but avoidance, minimization, and mitigation measures will be implemented to reduce impacts to less than significant (See Mitigation Measures Bio-1 and Bio-4 below).

Western Spadefoot (*Spea hammondii*)
Western spadefoots are nearly endemic to California, occurring throughout the Central Valley and coastal lowlands from the San Francisco Bay to Mexico, at elevations from sea level to 4,460 feet (Jennings and Hayes 1994). Western spadefoot primarily occur in grasslands with shallow vernal pools, but occasionally are found in foothill grasslands, open chaparral, and pine-

oak woodlands. Breeding occurs from January to March in temporary pools and drainages. Adults remain close to their breeding pools in underground burrows for most of the year and will travel up to several meters on rainy nights (CWHR 2000). The closest CNDDB occurrence of western spadefoot is 8.7 miles southwest of the project footprint.

This project is not likely to adversely affect western spadefoot since the species is not known to occur in the area. Avoidance and minimization measures for general wildlife (See Mitigation Measure Bio-1 below) will serve to further reduce potential impacts to western spadefoot.

San Joaquin Whipsnake (*Masticophis flagellum ruddocki*)
San Joaquin whipsnakes reportedly occur from around Arbuckle in Colusa County in the Sacramento Valley, south to Kern County along the Grapevine in the San Joaquin Valley, and west into the inner South Coast Ranges. There is also a disjunct population in the Sutter Buttes. San Joaquin whipsnakes occur in open, dry areas with little or no tree cover, such as valley grassland and saltbush scrub, and take refuge in rodent burrows, under shaded vegetation, and under surface objects (California Herps 2013a). The closest CNDDB occurrence of San Joaquin whipsnake is 7.4 miles southeast of the project area.

This project is not likely to adversely affect San Joaquin whipsnake since the project area is on the edge of (or just outside) the species' known range, and the distance between the project footprint and the nearest recorded occurrence is over 7 miles away from the project area. Avoidance and minimization measures for general wildlife (See Mitigation Measure Bio-1 below) will serve to further reduce potential impacts to San Joaquin whipsnake.

Coast Horned Lizard (*Phrynosoma blainvillii*)
Coast horned lizards are found along the Pacific coast from the Baja California border west of the deserts and the Sierra Nevada, north to the Bay Area, inland as far north as Shasta Reservoir, and south into Baja California, from sea level to 8,000 ft. They range up onto the Kern Plateau east of the crest of the Sierra Nevada. While coast horned lizards inhabit a variety of habitats such as grasslands, coniferous forests, woodlands, and chaparral, they require open areas and loose soil microhabitats within these areas. They are often found in lowlands along sandy washes with scattered shrubs and along dirt roads and frequently near ant hills (California Herps 2013b). The closest CNDDB occurrence of coast horned lizard is 4.2 miles southeast of the project area.

This project is not likely to adversely affect coast horned lizards due to the distance of the project from the nearest observation. The species is also not known to occur in the project area. Avoidance and minimization measures for general wildlife (See Mitigation Measure Bio-1 below) will serve to further reduce potential impacts to coast horned lizard.

Burrowing Owl (*Athene cunicularia*)
Burrowing Owls inhabit appropriate habitats throughout the state from sea level to approximately 5,300 ft. They are primarily a grassland species but also occur in desert habitat

and open shrub habitats within pinyon-juniper and ponderosa pine habitats (CWHR 1999). Unlike many sensitive species, Burrowing Owls persist and even thrive in some landscapes that are highly altered by human activity. The characteristics of suitable habitat appear to be burrows for roosting and nesting and relatively short vegetation with only sparse shrubs and taller vegetation. Individuals in agricultural environments nest along roadsides and water conveyance structures. Breeding occurs February through August (CDFW 2012). The closest CNDDB occurrence of Burrowing Owl is approximately 0.4 miles from the project area.

This project is not likely to adversely affect Burrowing Owls because the project activities are centered on wetted areas that are considered unfavorable habitat. Impacts to appropriate burrowing owl habitat, such as access roads, will be minimized by implementation of Mitigation Measures Bio-1 and Bio-5 below.

Swainson's Hawk (*Buteo swainsoni*)
Swainson's Hawks once occupied large grassland and shrubsteppe habitats, as well as canyons, foothills, and smaller interior valleys in otherwise mountainous regions. Currently the species is most common in the Central Valley and Great Basin. Nesting habitat for Swainson's Hawk includes mature trees with relatively dense canopies such as oaks or cottonwoods in or near riparian habitat. They forage in grasslands, irrigated pastures, and grain fields. Within California, Swainson's Hawks begin nesting in late March, and young usually leave the nest (fledge) by August. The closest CNDDB occurrence of Swainson's Hawk is 1.5 miles northeast of the project area.

This project is not likely to adversely affect Swainson's Hawk because there are very few potential nest trees to provide suitable habitat within the project vicinity, most work will occur outside of the nesting season, and mitigation measures will be implemented if nesting Swainson's Hawks are found within ¼ mile of the project area.

White-tailed Kite (*Elanus leucurus*)
White-tailed Kites are distributed throughout the western hemisphere; however, the majority of North American residents occur in California. They inhabit low foothills or valley areas with valley or live oaks, riparian areas, and marshes near open grasslands and agricultural areas for foraging. Nesting occurs in trees with dense canopies from February to August. The closest CNDDB occurrence of White-tailed Kite is 1.5 miles east of the project area.

This project is not likely to adversely affect White-tailed Kite because there are very few potential nest trees to provide suitable habitat within the project vicinity, most work will occur outside of the nesting season, and mitigation measures will be implemented if nesting White-tailed Kites are found within 500 feet of the project area.

American Badger (*Taxidea taxus*)
American badgers are uncommon but widely distributed throughout the state, except in the North Coast, from below sea level to over 12,000 ft. They inhabit a variety of open, arid habitats

but are most abundant in drier open stages of most shrub, forest, and herbaceous habitats with friable soils for burrowing. American badgers are generally solitary and possess large home ranges. Natal dens are constructed in dry, sandy soil with sparse over-story. Young are born in March and April and disperse after three to four months (CWHR 1990). Dens are elliptical in shape and are approximately 5.9-9.8 inches tall and 7.9-11.8 inches wide (JBRT 2011). The closest CNDDB occurrence of American badger is 0.1 miles west of the project area.

This project is not likely to adversely affect American badgers because no suitable burrows have been identified within the project area and the species is not known to occur in the project area. Additionally, mitigation measures below for general conservation (Mitigation Measure Bio-1) and for San Joaquin kit fox (Mitigation Measure Bio-6) will serve to further decrease the likelihood of impacts to this species.

San Joaquin Kit Fox (*Vulpes macrotis mutica*)

The San Joaquin kit fox is endemic to the Central Valley and currently utilizes suitable habitat in the San Joaquin Valley and in surrounding foothills of the Coast Ranges, Sierra Nevada, and Tehachapi Mountains, from southern Kern County north to Contra Costa County. In the northern part of its range (including San Joaquin, Alameda and Contra Costa Counties), where most historic habitat on the valley floor has been eliminated, kit foxes now occur primarily in foothill grassland, valley oak savanna, and alkali grasslands.

Dens, which are used for temperature regulation, shelter from adverse weather, and protection from predators, are either dug by kit fox, constructed by other animals, or consist of human-made structures (culverts, abandoned pipelines, or banks in sumps or roadbeds). San Joaquin kit fox dens are scarce in areas with shallow soils because of the proximity to bedrock, high water tables, or impenetrable hardpan layers. Many dens may be used throughout the year, and individuals may change dens often.

During September and October, females begin to clean and enlarge natal dens. Mating occurs between December and March, and adult pairs stay together all year. Pups are born in February or March and generally disperse after four or five months.

Coyotes (*Canis latrans*) are known predators of San Joaquin kit fox and can contribute toward a high proportion of a population's mortality. In addition, they are competitors for prey. Coyote pups are easily mistaken for San Joaquin kit foxes so time of year must be taken into consideration when surveys are conducted (Clark et al. 2007).

The closest CNDDB occurrence of San Joaquin kit fox, which was last recorded to have been observed in 1998, is 0.04 miles from the project area; however, a 2003 survey of the California Aqueduct from Clifton Court Forebay to the southern-most portion of Bethany Reservoir found no evidence of recent occupancy (Clark et al. 2003). This study used a combination of ground surveys on public lands using trained dogs to find fox scat and aircraft surveys over the entire area in search of active dens.

This project is not likely to adversely affect San Joaquin kit fox because their presence in the area is unlikely. No suitable burrows have been identified in the project area and coyotes are prevalent in the area. If San Joaquin kit foxes were to forage in or near the project area, this would occur at night when project activities would not be taking place. Additionally, Mitigation Measures Bio-1 and Bio-6 below will serve to further decrease the likelihood of impacts to this species

3.4.2 Discussion

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, the U.S. Fish and Wildlife Service, or the National Marine Fisheries Service?

Less than significant impact with mitigation incorporated. Mitigation Measures Bio-1 through Bio-6, listed below, will serve to minimize impacts to general plants and wildlife, special status plants, California tiger salamander, California red-legged frog, special status birds, and San Joaquin kit fox to less than significant levels.

Mitigation Measure Bio-1: Avoid and minimize potential impacts to general wildlife
To minimize potential impacts to any plants and wildlife potentially present within the project area, the following general measures will be implemented.

- Before any construction activities begin, a US Fish and Wildlife Service-approved biologist shall conduct a training session for all construction personnel. At a minimum, the training shall include a description and discussion of the mitigation measures within this document and a brief description of each species listed in these measures including a discussion of identification, habitat and legal protections.
- A Service-approved biologist will be present during all ground disturbing activities and activities in wetted areas.
- Project activities shall be performed during daylight hours. Work in areas with standing water will take place between September 1st and October 31st.
- Absorbent materials will be available on site. Any accidental leaks or spills will be immediately cleaned up, and the equipment will not be able to return to the project area until it has been repaired sufficiently to prevent further leaks or spills.
- All trash shall be properly contained, removed from the work site, and disposed of properly to prevent attracting predators.
- Any observations of federally or state-listed species will be reported to the Service and the CDFW within three (3) working days of the observation.

- With the exception of California red-legged frogs and California tiger salamanders, all federally and state-listed species observed will be allowed to leave the project area on their own. The on-site Service-approved biologist will have the authority to determine whether activities must cease in order to ensure their protection.

Special Status Plants

Potential habitat for special status plants exists within the project footprint; therefore, avoidance and minimization measures will be implemented. With the following mitigation measure, this project is not likely to adversely affect special status plants.

Mitigation Measure Bio-2: Avoid and minimize impacts to special status plants
Botanical surveys will be conducted by a botanist in the appropriate seasons for special status species that are potentially present within the project footprint. If any special status plants are detected, they will be flagged and avoided as appropriate, or in the case of annual plants, efforts will be made to maintain the affected population. If federal or state listed plants cannot be avoided, the appropriate regulatory agencies will be consulted regarding preservation methods.

Special Status Wildlife
The project could have potential adverse effects on special-status wildlife species. Implementation of general conservation measures in Mitigation Measure Bio-1 and Mitigation Measures Bio-3 through Bio- 6, impacts to special status wildlife will be reduced to less than significant.

Amphibians
The project is not likely to adversely affect western spadefoot. Impacts to California tiger salamander and California red-legged frog will be less than significant with mitigation incorporated (Mitigation Measures Bio-1, Bio-3, and Bio-4) and due to the design of the project; removing half of the vegetation within drainage ditch 3 in alternate years to maintain habitat.

Mitigation Measure Bio-3: Avoid and minimize impacts to California tiger salamander

- Work is to take place during daylight hours during the dry season and not during rain events.
- Any burrows or large cracks in the ground that may be temporarily traversed by heavy equipment traffic will be covered with plywood to prevent collapse of the burrows.
- Impacts to areas determined to be habitat for CTS will be fully mitigated, in consultation with USFWS and CDFW, through a mitigation bank.

Mitigation Measure Bio-4: Avoid and minimize impacts to California red-legged frog

- DWR will submit to the Service (at least 15 days prior to onset of activities) the names and credentials of the biologists who will conduct the activities specified in the following measures. No activities will begin until DWR has received written approval from the Service that the biologist(s) is qualified to conduct the work. Only Service-approved biologists shall participate in activities associated with capture, handling, and monitoring of California red-legged frogs.
- A Service-approved biologist(s) will survey the disturbance areas each morning immediately prior to maintenance activities and will remove California red-legged frogs, both before and during the seepage monitoring weir replacement, palm tree removal, or drainage ditch vegetation removal. Removed vegetation and sediment will be carefully placed in the dump truck bed and examined for frogs prior to being disposed of at the spoils site.
- All California red-legged frogs will be placed in a cool, clean container with fresh, clean, cool water. Adult and sub-adult frogs will be kept in separate containers.
- To the extent practicable, any bullfrogs found at the project site will be dispatched and removed from the site.
- The Lindsay Wildlife Museum in Walnut Creek, California, will be notified and sent any injured California red-legged frogs for rehabilitation.
- After maintenance activities have ceased, any California red-legged frogs held in captivity will be released back into the work site within wetland habitat that is unaffected by the maintenance activities. If there is insufficient wetland habitat at the drainage of origin, frogs will be released at the nearest available area with suitable habitat. Care will be taken to minimize the frog's exposure to hydrogen sulfide. A minimum of one hour will pass after all maintenance activities within the pond or drainage have ceased before replacing the frogs.
- A report containing details of the construction activities and any observations of federally and state-listed species will be submitted to the Service and CDFW within 30 days of project completion. The report will document the number of California red-legged frogs at each life stage that were known to be taken and the form of take (e.g., harassment by moving, mortality).
- Impacts to areas determined to be habitat for California red-legged frogs will be fully mitigated, in consultation with USFWS and CDFW, pursuant to permit requirements.

Reptiles

With the implementation of the general conservation measures in Mitigation Measure BIO-1, this project is not likely to adversely affect the San Joaquin whipsnake and coast horned lizard.

Birds

With the implementation of the general conservation measures in Mitigation Measure BIO-1, this project is not likely to adversely affect nesting birds solely protected under the Migratory Bird Treaty Act. Incorporation of Mitigation Measure Bio-5 will ensure that potential impacts to special status birds (Burrowing Owl, Swainson's Hawk, and White-tailed Kite) will be less than significant.

Mitigation Measure Bio-5: Avoid and minimize impacts to migratory and special status birds

- A qualified biologist will conduct preconstruction surveys and identify active migratory bird nests within 250 feet, White-tailed Kite nests within 500 feet, and Swainson's Hawk nests within 0.25 miles of the project footprint. Preconstruction surveys shall be conducted during the nesting season (March 15 to August 15) no less than 14 days and no more than 30 days before any construction activity begins. If no nests are found, no further mitigation is required. Any construction activity that occurs between August 16 and March 14, outside the nesting season, shall not require preconstruction surveys.
- If nests are located, impacts shall be minimized by establishing an appropriate non-disturbance buffer zone around active nests in coordination with CDFW guidelines. Buffer zones shall be determined in consultation with CDFW and will depend on the species involved, site conditions, and type of work proposed. No new project activity shall occur within the buffer zone until the young have fledged, until the nest is no longer active, or until a qualified biologist has determined in consultation with CDFW that reducing the buffer would not result in nest abandonment. Monitoring of the nest by a qualified biologist during construction shall be required to ensure that nests are not jeopardized.
- Preconstruction surveys will be conducted for Burrowing Owls within 500 feet of the project area 30 days prior to construction. If an active burrow is found during the breeding season (February 1 through August 31), clear, visible markers will be placed on the roadways to clearly demarcate the burrow location so vehicles traveling either direction on the road and workers at the project site will avoid disturbing the area. Where feasible, buffer zones will be implemented to minimize disturbance impacts while construction activities are occurring, following recommendations in the CDFW Staff Report on Burrowing Owl mitigation (CDFW 2012).
- If Burrowing Owls are present within 500 feet of the project area, active burrows will be monitored by a qualified biologist throughout the construction phase to determine the effectiveness of buffers, visual screens, or other measures, and to determine if the vehicle traffic is jeopardizing an active nest. DWR shall consult with CDFW for assistance in developing site-specific solutions, as needed, and to

determine if the owls are sensitized to human disturbance and the survey effort can be reduced.

Mammals

This project is not likely to adversely affect special status mammals. However, Mitigation Measure Bio-6 listed will be implemented to further reduce impacts to San Joaquin kit fox to less than significant levels. The inclusion of this measure will serve to decrease impacts on American badgers to less than significant levels as well.

Mitigation Measure Bio-6: Avoid and minimize impacts to San Joaquin kit fox

- A qualified biologist shall conduct a pre-construction survey on DWR property no more than two weeks prior to work commencing to determine if there are any potential San Joaquin kit fox dens are located within 200 feet of the disturbance areas.
- Potential kit fox dens within 100 feet of a disturbance area will be tracked for three consecutive nights to determine if they are currently used by kit fox.
- Any potential kit fox dens located within 50 feet of a disturbance area will be temporarily blocked with burlap bags filled with soil (after three consecutive nights of tracking have been completed without evidence of San Joaquin kit fox use) to prevent them from using these dens during Project activities.
- A 100 foot exclusion zone will be marked around any known San Joaquin kit fox den within the survey area using lathe and flagging.

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service?

Less than significant impact with mitigation incorporated.
Critical Habitat for California red-legged frog as defined by USFWS may be adversely affected by the project, which is located within California red-legged frog critical habitat CCS-2B. This habitat unit is comprised of 44,470 acres and contains features that are essential for the conservation of the species, including aquatic habitat for breeding and non-breeding activities, and upland habitat for foraging and dispersal activities. Upland habitats adjacent to aquatic areas, including manmade structures and wetlands like those in the project area, are essential in maintaining red-legged frog populations. However, implementation of Mitigation Measures Bio 1 through Bio-6 will reduce impacts to sensitive communities to less than significant.

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?

Less than significant impact with mitigation incorporated.
A Preliminary Jurisdictional Determination will be made by a qualified biologist to determine impacts to potentially jurisdictional waters and, if deemed necessary, a wetland delineation may be prepared and submitted to the Corps for verification.

Federally protected wetlands are located within the project area. Permanent wetland impacts include the removal of wetland vegetation from the length of the extended drainage ditch outfall pipes. Temporary impacts include the removal of vegetation from the ditch bottom and sides of Dams 1, 2, and 3, vegetation removal for the seepage monitoring weir replacement, and the temporary dewatering for the palm tree removal. All construction activities that have the potential to affect wetland areas will take place between September 1 and October 31, which falls within the dry season, or as otherwise determined by permitting agencies, and in compliance with sections 401 and 404 of the federal Clean Water Act.

With implementation of Mitigation Measure Bio-7, the proposed project will have a less than significant impact on wetlands.

Mitigation Measure Bio-7: Minimize impacts to jurisdictional waters of the United States and waters of the State

- A temporary sediment barrier (silt fence) will be installed prior to the seepage monitoring weir replacement to prevent sediment from entering water bodies.
- All staging areas, parking areas, equipment, and storage areas for fuel, lubricants, and solvents will be located in areas away from waters of the United States and waters of the state.

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?

Less-than-significant impact.
No fish migration corridors are present within the project area. The project will only affect small discrete patches of habitat, and will not intersect or block larger areas of habitat. Wildlife species would still be able to easily move around the project areas.

Potential red-legged frog breeding sites are located throughout the general project area in the drainage ditches and in the outlet drainage from the interim plant. However, in-water construction will take place outside of red-legged frog breeding and rearing season (November-

August), so the project is not likely to impede the use of red-legged frog nursery sites. Therefore impacts to migratory corridors of use of nursery sites will be less than significant.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

No impact. The proposed project does not conflict with the East County Area Plan (ECAP), which is part of the Alameda County General Plan. The goal of the Watershed section is to protect the watershed land from the direct and indirect effects of development. The goal of the Biological Resources section is to preserve a variety of plant communities, wildlife habitat, and wetlands, and to maintain biological diversity. The proposed project will be in compliance with the goals and objectives of the ECAP.

Alameda County Ordinance No 0-2004-23 regulates tree removal within the County right-of-way; however, project activities will only occur on state owned land and not within the County right-of-way. This project will not conflict with any local policies or ordinances protecting biological resources; therefore, there will be no impact.

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?

No impact. The proposed project area is not covered by an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional or state habitat conservation plan.

The East Alameda County Conservation Strategy (EACCS) is currently in Final Draft form, but has not been formally adopted by Alameda County. It is a collaborative effort to preserve endangered species by developing a shared vision for long-term habitat protection. The primary goal of EACCS is to develop a coordinated and biologically sound approach to mitigation that will both support conservation and/or recovery of listed species and streamline state and federal permitting by providing guidance on avoidance, minimization, and mitigation for projects. EACCS does cover the project area and the project is generally consistent with the strategy. However, EACCS is a non-binding conservation strategy and consistency with a draft plan cannot be considered an impact under CEQA.

3.5 Cultural Resources

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
	Would the project:				
a.	Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	☐	☐	☐	☒
b.	Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☒	☐	☐
c.	Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒
d.	Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

3.5.1 Environmental Setting

PREHISTORIC SETTING

The project area is situated between two distinct regions, each having unique environmental and cultural contexts. Both the San Francisco Bay and the Central Valley have similar chronologies, despite the differences in cultural traditions and environment. The cultural changes for each of the regions are briefly discussed below.

SAN FRANCISCO BAY CHRONOLOGY

The following discussion of the regional prehistoric background is adapted from Milliken, et al. (2007). Little is known of the Paleo-Indian period in the San Francisco Bay Area. No evidence of occupation prior to 10,000 Before Present (B.P.) has yet been discovered in the region; however, it is presumed that large game hunters lived in the area. The Lower Archaic Period (10,000 to 5,500 B.P.) is marked by generalized mobile foraging patterns. Large-stemmed, leaf-shaped projectile points, milling slabs, and handstones are characteristic of this time period. The earliest date for a San Francisco Bay Area site was obtained from the C14 dating of charcoal found in association with a millingstone. The site was dated at 9,920 B.P. with an economy

focused on acorns. Table 1 includes information on the San Francisco Bay Area and Central Valley Cultural Sequences.

Table 1
San Francisco Bay Area and Central Valley Cultural Sequences

San Francisco Bay Cultural Chronology		Central Valley Cultural Chronology	
Paleo-Indian	pre-10,000 B.P.	Paleo-Indian	12,000 – 10,500 B.P.
Lower Archaic	10,000 – 5,500 B.P.	Lower Archaic	10,500 – 7,500 B.P.
Middle Archaic	5,500 – 2,500 B.P.	Middle Archaic	7,500 – 2,500 B.P.
Upper Archaic	2,500 – 430 B.P.	Upper Archaic	2,500 – 850 B.P.
Late Upper Archaic	1,520 – 900 B.P.		
Lower Emergent	900 – 400 B.P.		
Terminal Late Period	400 – 174 B.P.	Emergent Period	850 B.P. – Historic

Note:
B.P. – Before Present

The Middle Archaic (5,500 – 2,500 B.P.) is where evidence of sedentism and an increase in regional trade are exhibited. Large shell mounds and house floors with postholes dating to 3,500 B.P. were documented at site CA-CCO-309. The mortar and pestle technology arrive in the area after 6,000 B.P. as well as an increase in mortuary offerings, such as beads and ochre with burials. The first cut Olivella shell beads are documented at the San Bruno Mound, dating to 5,400 to 4,500 years ago.

The Upper Archaic is marked by the disappearance of the ubiquitous rectangular shell bead types found in Early Period components, having been replaced with split-beveled and saucer Olivella that may have been used for religious purposes. A new bone tool kit containing barbless fish spears and basketry awls appear along with net sinkers. The mortar and pestle continue to be the primary food-processing ground stone tools. The first evidence of well-developed middens can be dated to this time period.

Lower Emergent Period is marked by social changes, particularly in the form of social stratification. Items signifying wealth and status, such as finely made shell beads and ornaments, began to appear. Arrow-sized projectile points appeared approximately 700 years ago. The structure of the obsidian trade network changed from tool production at the Napa Valley Glass Mountain obsidian quarries to the removal of raw material for tool production elsewhere. Mortuary practices include cremations and wealthy grave offerings.

The Terminal Late Period artifacts consists of innovative tools such as the toggle harpoon, hopper mortar, plain corner-notched arrow-sized projectile points, and wealth indicators such as the clamshell disk beads and magnesite tube beads. The sequin and cup beads abruptly disappear from use.

CENTRAL VALLEY CHRONOLOGY

The following discussion of the regional prehistoric background is adapted from Rosenthal, et al. (2007). The earliest well-documented entry and spread of humans into California occurred at the beginning of the Paleo-Indian Period (12,000 to 10,500 B.P.). Characteristic artifacts recovered from archaeological sites of this time period have included fluted projectile points (often compared to Clovis points), cobble cores, and biface rough-outs. Social units are thought to have been small and highly mobile.

The beginning of the Lower Archaic Period (10,500 to 7,500 B.P.) coincides with that of the Middle Holocene climatic change which resulted in widespread floodplain deposition. This episode resulted in most of the early archaeological deposits being buried. Most tools during this Period were manufactured of local materials, and distinctive artifact types include large dart points and the milling slab and handstone.

The Middle Archaic (7,500 to 2,500 B.P.) is characterized by warm, dry conditions which brought about the drying up of pluvial lakes. Economies were more diversified and may have included the introduction of acorn processing technology, although hunting remained an important source of food. Artifacts characteristic of this Period include milling stones and pestles and a continued use of a variety of implements interpreted as large dart points.

The Upper Archaic Period (2,500 to 850 B.P.) corresponds with a sudden turn to a cooler, wetter and more stable climate. The development of status distinctions based upon wealth is well documented in the archaeological record. The development of specialized tools, such as bone implements and stone plummets as well as manufactured goods (e.g. Olivella saucer and saddle beads, Haliotis ornaments) were prolific during this time. The regional variance of economies was largely due to the seasonality of resources which were harvested and processed in large quantities.

Several technological and social changes distinguish the Emergent Period (850 B.P. to Historic) from earlier cultural manifestations. The bow and arrow were introduced, ultimately replacing the large dart points, and territorial boundaries between groups became well established. In the latter portion of this Period (1500 A.D. to the 1800s), exchange relations became highly

regularized and sophisticated. The clam disk bead developed as a monetary unit of exchange, and increasing quantities of goods moved greater distances. It was at the end of this Period that contact with Euroamericans became commonplace, eventually leading to intense pressures on Native American populations.

ETHNOGRAPHIC CONTEXT

The project area is situated within the area occupied by the Northern Valley Yokuts and the Costanoan/Ohlone. It was the work of ethnographers whom identified regional variations of linguistic differences and similarities, which facilitated in mapping the traditional tribal territories we see today. Often there is an overlap of cultures and no distinct boundary is marked in place. The following is a brief overview of each of the tribes.

The traditional Northern Valley Yokut territory expands from the San Joaquin River and the Delta to south of Mendota. The Diablo range most likely marked the Yokuts' western boundary (Wallace 1978) and the Sierra foothills marked the eastern edge. Yokuts' occupation of the northern parts of the range may be relatively recent, as linguistic evidence points towards an earlier Miwok occupation. The Yokuts gradually expanded their range northwards, and clearly occupied the area during the Spanish Colonial period, as evidenced by mixed historic and prehistoric artifact assemblages. The late prehistoric Yokuts may have been the largest ethnic group in pre-contact California.

The Northern Valley Yokuts traded clam shells, asphaltum, buckskins, and obsidian with the Chumash tribe to south. In return the Chumash would trade abalone shell pendants and other shell ornaments (Pohorecky 1976: 14). The Northern Valley Yokuts settlement locations depended primarily on proximity to water and other resources. Dwellings constructed of tule stalks were built along the natural levees and the shores of rivers and sloughs. Their primary subsistence consisted of acorns, salmon, and water fowl, in addition to harvesting wild plants, seeds, and roots (Wallace 1978:464).

Euro-American contact with the Northern Valley Yokuts began in the late 1700s to early 1800s, and continued through the gold rush era which led to significant reductions in the Native populations due to disease and violent relations with the settlers. Though there was no gold within the Yokuts territory, miners passing through on their way to the diggings caused a certain amount of upheaval. Former miners, who had seen the richness of the San Joaquin Valley on their way east, later returned to settle and farm the area, (Wallace 1978:469) further displacing the remaining Native populations.

The name Costanoan was derived from the Spanish settlers calling the inhabitants of the area Costenos (people of the coast). The word Costenos was later mispronounced and the current name has remained to identify the many groups that were in the region. The Costanoan's are also referred to as Ohlone, a possible village name along the San Mateo coast; however the origin of the word is still disputed (Galvan 1968). Costanoan is a linguistic family consisting of eight languages, as opposed to dialects, with the closets form from the Utian family within the Penutian Stock (Levy 1978: 485-486). The Costanoan's had approximately 50 distinct and autonomous tribelets, each with a population ranging from 50 to 500 persons.

The dwellings were domed structures with a tule and grass roof tied down with willow. Dance houses and sweat lodges were both circular in shape. Winter settlements were located near shore-lines, lagoons, or sloughs where reliable supplies of fresh water existed along with a wide variety of flora and fauna. Subsistence involved the taking of game (such as deer) year round, with salmon and sturgeon available during spring and fall. Migratory birds such a s geese were an important seasonal resource and were caught using decoys with nets. Other mammals, such as dog, wild cat, skunk, raccoon, and other small mammals were eaten. Large mammals eaten included black-tailed deer, grizzly bear, mountain lion, and at villages closer to the ocean, sea lions and whales (Levy 1978: 491).

By 1797, seven Spanish missions had been established within the Costanoan territory and with them came the introduction of diseases. In a 60-year time period, the native population fell from 10,000 to under 2,000 individuals. By 1973, the estimated count of a person of Costanoan decent was 200 (Levy 1978: 487).

HISTORIC CONTEXT

Bethany Reservoir and Dams, SBPP, and the Christensen Road Bridge are part of the California State Water Project (SWP), which was created to store and supply water for the San Francisco Bay Area, the San Joaquin Valley, the central coast, and southern California. This historic context discusses the geographic region of the project area and the history of water in California with a focus on the creation of the SWP and its critical components, including the California Aqueduct, and post–World War II bridge construction.

REGIONAL OVERVIEW

Alameda County was formed by state officials in 1853 and incorporated the western and southern sections of Contra Costa County and a portion of Santa Clara County. The town of Alvarado served as the original county seat until officials relocated it to San Leandro in 1856,

finally settling in Oakland in 1873; the seat remains there currently (Hoover and Kyle 1990:1). By the late nineteenth and early twentieth century, Alameda County became one of the leading agricultural hubs of California, with agriculture, dairy farming, and livestock grazing serving as the principal industries of the period. By the late twentieth century, the county shed much of its agricultural identity and transformed into a mostly suburban and urban county boasting one of the most populous counties in the Bay Area.

History of Water in California

The history of water in California is one of increasing public efforts to control the distribution of this most critical resource. What was once viewed as a core element of individual property rights in a frontier state is now recognized as an important resource that is managed and distributed according to a statewide code. California's water distribution system is a monument to the State's continuing struggles to satisfy the demands of often competing interests.

At California's Constitutional Convention in 1849, participants adopted English common law as the basis for the State's legal system. English law includes the riparian doctrine practiced in the eastern half of the United States, where precipitation falls more regularly than in California. The doctrine entitles those with property adjacent to water sources, including aboveground and underground streams, ponds, or lakes, to reasonable use of that water as long as they do not interfere with the reasonable use of others. Furthermore, the riparian doctrine gave the landowner the ultimate right to the water, even to the point of allowing the landowner to do nothing with the water.

Mining and Water Rights

During the Gold Rush, miners adopted a "first in time, first in right" policy to determine water rights, with continued use of the water as the only requirement to maintain rights. This policy conflicted with the riparian doctrine of English common law but was upheld by the California Legislature in 1851, when it became a State law (California Act of 1851) (Hundley 2001:71–72; Kinney 1912:1046).

In 1848 and 1849, miners gathered most gold from relatively shallow sources in or near rivers and streams. By the early 1850s, however, most of the gold deposited in the streambeds had been mined, so miners moved water to the sources of gold. During this period, hydraulic mining, which involves using pressurized jets of water to excavate gold-bearing soil, was introduced. The mining method was extremely destructive to the landscape and washed away entire hillsides. The mining operations along the Feather, Bear, Yuba, and American Rivers were

extensive (Isenberg 2005:70). Each of these rivers flows into the Sacramento River, and as the debris from the mining operations collected in the Sacramento River, it caused the riverbed to rise, increasing the scale and frequency of seasonal flooding (O'Neill 2006:80–84). Communities along the Sacramento River felt the effects of hydraulic mining as floods and debris ruined vast amounts of agricultural lands, affecting the livelihood of farmers and causing rivers to became unnavigable (Crawford and Herrick 2006:138). As a result, farmers undertook concentrated efforts to halt hydraulic mining, and lawsuits were brought against the mining companies. In 1884, those lawsuits culminated in Woodruff v. North Bloomfield, in which Judge Lorenzo Sawyer put an end to legal hydraulic mining (O'Neill 2006:84–85).

Irrigation and Reclamation

As early as the 1850s, as goldfields were gradually depleted, it became clear that the future of California lay not in mining but in farming. In 1861, the State legislature created the State Board of Reclamation Commissioners, which authorized reclamation districts to reduce and control flooding and to drain water from swamplands to create productive farmland. The intensive cultivation of a variety of produce and extensive production of grain proved productive and profitable in California; however, intensive agriculture required investment and patience. Although wheat produced great profits, the investment necessary to sustain intensive agriculture led to the decline of the wheat industry in the late 19th century and helped focus statewide attention on expanding and improving irrigation (Paul 1973:20–24).

Irrigation in California was often haphazard. In the Sierra Nevada foothills, old mining ditches were used while farmers in the Central Valley tapped into groundwater (JRP and Caltrans 2000:12; Cooper 1968:114). Passage of the Wright Act in 1887, which allowed farmers to form and bond irrigation districts, was supposed to be a step toward regularizing the process of irrigating unproductive lands. The act was meant to counter the perception that California's best lands had been monopolized by a few people who blocked the opportunity of the many. In helping to make new lands available for irrigation, the legislature hoped that it would promote small family farms and thereby support community values. However, the act did not succeed in its overall mission in part because of the lack of available financing (Hundley 2001:96).

By the beginning of the 20th century, most of the irrigation districts that had been formed under the Wright Act had failed, and a consensus emerged that private capital was insufficient to the task of turning California's barren land into productive farms. With water delivered to the right locations, California would be a fertile region that would produce an agricultural bounty large enough to feed not only California and the nation but, ultimately, the world (Starr

1985:128). With passage of the Newlands Reclamation Act in 1902 and the promise of federal aid to western development and a 160-acre limit on land, private interest groups relentlessly promoted such development. The Commonwealth Club of California even devoted the bulk of its inaugural publication to swampland reclamation in the Central Valley (Commonwealth Club of California 1903; Kelley 1989: 252; Pisani 2002: 255).

To encourage increasing irrigation development, the California Legislature passed the Water Commission Act of 1913. The act established a commission to investigate water sources, regulate acquisition of the rights to appropriate water, provide for determining water rights, and supervise the distribution of water. The law aimed to quiet disputes over California's conflicting water rights in part by granting privileges to water appropriators (Mowry 1951:152).

At the start of the 20th century, California's population of 1.4 million was about the same size as that of Kansas (U.S. Census Bureau 1901:18). Although California added another 900,000 people in the first decade of the 20th century and more than 1 million more in the following century, many thought the lack of coordinated water resources was restraining the state's growth. As early as the 1880s, State engineer William Hammond Hall envisioned great irrigation canals linked together to develop the Central Valley, but wheat farming dominated Central Valley agriculture at the time. With the collapse of wheat, a more intensive, irrigated, and diverse agriculture developed. This was especially true in the Central Valley, where the rural population tripled between 1900 and 1920. In the late 1910s, Lt. Robert Marshall's planned to irrigate the entire Central Valley, but Marshall's plan was overly ambitious, and before any such coordinated plan could be implemented, the State had to address the challenge of entrenched riparian rights (Kahrl 1979:46; Marshall 1920:7, 12; O'Shaughnessy 1920).

This issue of riparian and appropriative rights reached a critical point in 1886 in the case of Lux v. Haggin, where the California Supreme Court voted in favor of riparian rights. The court's decision was upheld in 1926 in another case, which forced passage of a constitutional amendment in 1928. The amendment recognizes riparian rights but also indicates that landowners must use their water responsibly (Cooper 1968:410). The amendment did not entirely clarify water rights in California, however, and the issue continues to be a complicated one that is fought in the courts.

CENTRAL VALLEY PROJECT AND STATE WATER PLAN

The idea of a statewide water plan was first discussed in 1919, when Lt. Robert B. Marshall, chief hydrographer of the U.S. Geological Survey, proposed to California's governor a redistribution of water from the Sacramento River to the San Joaquin Valley and then over the

Tehachapi Mountains. Marshall's plan was met with resistance, but it served as the basis for what eventually became the Central Valley Project (CVP) and the SWP (DWR 2011; Cooper 1968:50–52).

Marshall wrote his water plan during a period of severe drought in the Central Valley, which began in 1917 and did not end until 1934. Groundwater was rapidly being depleted, and dropping water levels in the Sacramento–San Joaquin Delta (Delta) allowed ocean water from the San Francisco Bay to enter the Delta, resulting in water unfit for irrigation. The legislature created the California Department of Public Works, which included the Division of Water Resources, and authorized the agency to conduct a comprehensive water investigation in 1921 at the plea from Central Valley farmers. For 10 years and at the cost of $1 million, the California Division of Water Resources (later to become the California Department of Water Resources), under the direction of State engineer Edward Hyatt, studied the Central Valley and other watersheds. The final report, the State Water Plan, outlined the state's water resources, flood control needs, and irrigation possibilities for agricultural pursuits. Hyatt's plan was the basis for the CVP, which the Legislature passed in 1933 as the California Central Valley Project Act. That December, voters then approved a $170 million bond act. The passing of this act in the midst of the Great Depression meant California could not find buyers for the bonds. This coupled with Pacific Gas and Electric Company's massive campaign to stop the project, meant California could not pay for the project (Cooper 1968:51–53; DWR 2010). California's congressional delegation convinced the federal government to adopt the project, and it came under the control of the U.S. Bureau of Reclamation (Reclamation) in 1935 (DWR 2010; Kahrl 1979:49).

Construction on the CVP began in October 1937 with the Contra Costa Canal, and most facilities were completed in the early 1950s. The CVP greatly enhanced California's agricultural economy and was an important component to flood control in California (Bailey 2007:E4). Critical elements of the CVP's early projects included Shasta Dam (completed in 1951), which became the second largest concrete dam in the United States; the Friant-Kern Canal (completed in 1951), which carries water from the San Joaquin River more than 150 miles south to Bakersfield; and the Delta-Mendota Canal (completed in 1952), which is 115 miles long and brings water that replaces San Joaquin River water stored by the Friant Dam and transports it to the Mendota Pool (Bailey 2007:E36, E48, E70; JRP and Caltrans 2000:77). When the CVP was completed, it included 20 dams and reservoirs and 500 miles of canals and had the capacity to support more than 2 million citizens and 3 million acres of farmland (Hundley 2001:257–258).

STATE WATER PLAN AND THE STATE WATER PROJECT

In the years leading up to World War II, California began to recover from the Great Depression, and hundreds of thousands of people from other parts of the country poured into the state seeking opportunities in the defense industry. The population boom did not end with the war; by the end of the 1940s, California's population reached 10.5 million, and virtually every institution in the state was promoting continued growth (Cooper 1968:13).

Local governments and water officials were quickly realizing that their water supplies could not meet the growing demand of their communities. Farmers were also draining groundwater basins to irrigate their land (DWR 2011). In an effort to tackle the State's growing concern over water, the California Legislature passed in 1945 the State Water Resources Act, which created the State Water Resources Board (Board). The Board was assigned the task of conducting an inventory of the state's water resources. This inventory was conducted by the Division of Water Resources of the California Department of Public Works on behalf of the Board (Hundley 2001:278–279). The same act required all State agencies to consider all beneficial uses of watersheds (Hundley 2001:278–279; Hanemann and Dyckman 2009:713). Many organizations in the state, including the State Chamber of Commerce, Pacific Gas and Electric Company, the Farm Bureau Federation, and the Irrigation District Association, resented federal control of the CVP (and its continuing 160-acre limitation) and suggested that the State purchase the CVP. After several studies and much lobbying, the price was considered too high; such proposals had nearly disappeared by 1950 (Kahrl 1979:49).

The results of the Board's inventory determined that California lost 40% of its rivers' runoff to the ocean along the northern coast and that more than two-thirds of the state's need for water was concentrated in central and southern California. The results were published in 1951 as Bulletin No. 1: Water Resources of California (Cooper 1968:169; Hundley 2001:279). At the same time, State engineer Arthur D. Edmonston published a proposal that suggested building a multipurpose dam, reservoir, and power plant on the Feather River, northeast of the small town of Oroville in the northern Sacramento Valley; an aqueduct to transport water from the Delta to Santa Clara and Alameda Counties; and a second aqueduct to serve the San Joaquin Valley and southern California (DWR 2011). The storage of water would reduce the flooding hazard, and the stored water could be released into the Sacramento River at planned intervals and then deposited into the Delta. Here it would be able to check the flow of salt water from San Francisco Bay, which during droughts had seeped as far inland as Sacramento. The project would be paid for in part by the electricity generated at the dam's power plant.

The Delta is formed at the confluence of the Sacramento River, which drains the northern Central Valley, and the San Joaquin River, which drains the southern Central Valley toward the north. Edmonston proposed constructing a giant aqueduct fed by massive, custom-designed pumps that would force the water southward, where it could be used to water the dry southern valley and the cities of southern California after pumps lifted it over the Tehachapi Mountains at the southern end of the San Joaquin Valley (DWR 1974a:7).

In 1955, the results of a second study were published in Bulletin No. 2: Water Utilization and Requirements of California, which outlined the current and estimated water needs of California and predicted a water crisis. The report highlighted specific counties, such as Alameda, Santa Clara, San Benito, Ventura, Orange, San Bernardino, and Riverside, where the water needs were expected to continue to rise. Another critical region was the San Joaquin Valley, where a lack of irrigation water led farmers in the 1950s to pump out more groundwater than was used by the remainder of the state. According to the report, California's population would continue to grow, and unless efforts to correct the problem were increased, the demand for water would surpass the supply (Cooper 1968:170, 187–189).

That same year, the Feather River Project (later named the State Water Project), a modified version of Edmonston's original 1951 plans, was presented to the legislature with recommendations that the project include a massive storage facility to provide supplemental water supplies to the San Francisco Bay Area, and, more importantly, to supply water to the Westlands region on the west side of the San Joaquin Valley. In 1955, to address growing concerns about water supply in the state, the California Legislature eliminated the State Water Resources Board, created the California Department of Water Resources (DWR), and gave it authority over the State Water Plan (Cooper 1968:201–204; DWR 1957:2–3; Rarick 2005:205–228).

The third and final bulletin in the series, Bulletin No. 3: The California Water Plan was published in 1957 and outlined the plans for developing the state's water resources so that they would meet the immediate and future needs of California (DWR 1974a:7). The California Water Plan is updated by DWR every 5 years for the continued planning and preparedness of California's water needs (DWR 2010).

The California Aqueduct

DWR identified the primary water problem in California as the problem of maldistribution. Too much water was wasted in northern California, and too little rain fell in southern California (DWR 1957:10–11). Following severe storms and flooding in winter 1955–1956, the legislature

gave DWR emergency funds to begin construction of the Feather River storage facility. Even with the legislature's approval, many hurdles remained for implementing the Feather River Project. Paramount among them was the hostility the project faced from leaders in southern California cities who thought that the water promised by the project might come at the cost of Colorado River water that they were already receiving. In 1960, midway through the first term of Governor Edmund G. "Pat" Brown, voters approved a pair of bond measures. Construction began shortly thereafter, and the first phase of the SWP was completed between 1962 and 1971 (DWR 1974a:8; Cooper 1968:201–204; JRP and Caltrans 2000:82; Rarick 2005:205–228).

A key component of the SWP was the construction of the California Aqueduct, the primary delivery system of the SWP. It stretches 444 miles, from the Delta to Perris Reservoir in Riverside County (DWR 1974a:52). It begins at Italian Slough in the Delta, which leads to the Delta Pumping Plant and delivers water to the South Bay Aqueduct (Golze 1965:7). The San Luis Unit portion of the California Aqueduct is unique in that it is a joint project between the federal (Reclamation) and the State (DWR) governments, with the federal government responsible for 45% of the funds and California responsible for 55% (San Luis Unit Central Valley Project 1963:1, 4).

Construction on the aqueduct began in 1960 (Autobee 2011:8; Golze 1965:8). The San Luis Unit, which includes the San Luis Reservoir, located about 15 miles west of Los Banos, adjacent to State Route 152, was an outgrowth of Reclamation's 1949 Central Valley plan that called for additional storage capacity to alleviate record groundwater drawdowns (Autobee 2011.:7; DWR 1974a:49, 52). The O'Neill Pumping Plant draws water from the San Luis Reservoir and pumps it south. The San Luis Unit extends from the O'Neil Forebay (created with the construction of the dam) nearly 100 miles to Kettleman City. By October 1965, Reclamation had constructed 81 miles of the San Luis Canal; construction of the last 20 miles of the aqueduct was scheduled to begin in December of that year (Golze 1965:8). The San Luis Unit currently provides water for irrigation in Merced, Fresno, and Kings Counties (Garone 2011:206).

The SWP is the largest state-built water conveyance system in the United States, spanning more than 600 miles between northern and southern California. In 2001, the American Society of Civil Engineers recognized the SWP as one of the greatest American engineering achievements of the 20th century, listing it as one of only 10 internationally ranked "Monuments of the Millennium" for its remarkable engineering aspects and for the positive impact it had on regional economic trade and development (American Society of Civil Engineers 2011; DWR 2010). Today, the SWP provides drinking water for 25 million people; irrigates approximately 750,000 acres; and features 34 storage facilities, 20 pumping plants, four pumping-generating

plants, five hydroelectric power plants, and approximately 700 miles of open canals and pipelines.

Bethany Reservoir and South Bay Pumping Plant

Bethany Reservoir, which is the forebay for the SBPP, is a balancing pool for the discharge from the Harvey O. Banks Delta Pumping Plant (Delta Pumping Plant), located north of the reservoir (DWR 1974c:46). The SBPP was the first pumping plant of the SWP to be constructed. The plant was constructed in two phases and construction began in 1960 and was designed to keep four pumping units and their control structures. The second phase began in 1963 to house much larger pumping units and the building was widened from 27 feet to 33 feet (DWR 1974d:245–246). The SBPP lifts water from the forebay into the South Bay Aqueduct, the first of the three aqueducts to be completed for the SWP. To create the reservoir, five dams were constructed. The first dam was the Forebay Dam, constructed between 1958 and 1961. This dam created Bethany Forebay which was part of the original engineering plans for the South Bay Aqueduct (DWR 1974c:5, 220).

During the construction of the California Aqueduct, the decision was made to expand the forebay into a reservoir because it would provide the most economical conveyance facility for this section of the California Aqueduct rather than constructing a canal. Four additional dams were constructed and the aqueduct was cut into two sections at the northern and southern ends of the reservoir. In addition to the four dams, strip drains of granular materials surrounding perforated drain pipes were designed. Before the reservoir was expanded and the California Aqueduct was operating, an interim canal system was constructed for the South Bay Aqueduct that drew water from the Delta Mendota Canal, located approximately two miles east of the reservoir. A temporary pumping plant and outlet works was constructed at the right abutment of the Forebay Dam. Currently, that outlet works would be used in case of an emergency to empty the reservoir. Today, Bethany Reservoir functions as a 1.5-mile reach of the California Aqueduct and allows for the Delta Pumping Plant, located 2 miles north, operational flexibility as well as serving as a forebay for the SBPP (DWR 1974c:53; DWR 1974c:4–5, 219, 221, 228; DWR 2013).

3.5.2 Regulatory Setting

CEQA provides a broad definition of what constitutes a cultural or historical resource. Cultural resources can include traces of prehistoric habitation and activities, historic-era sites and materials, and places used for traditional Native American observances or places with special

cultural significance. In general, it is required to treat any trace of human activity more than 50 years in age as a potential cultural resource.

CEQA states that if a project would have significant impacts on important cultural resources, then alternative plans or mitigation measures must be considered. However, only significant cultural resources (termed “historical resources”) need to be addressed. The State CEQA Guidelines define a historical resource as a resource listed or eligible for listing on the California Register of Historical Resources (CRHR) (Public Resources Code Section 5024.1). A resource may be eligible for inclusion in the CRHR if it:

1. Is associated with events that have made a significant contribution to the broad patterns of California’s history and cultural heritage;

2. Is associated with the lives of persons important in our past;

3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or

4. Has yielded, or may be likely to yield, information important in prehistory or history.

The State CEQA Guidelines also require consideration of unique archaeological resources (Section 15064.5). As used in the Public Resources Code (Section 21083.2), the term “unique archaeological resource” means 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 any of the following criteria:

1. Contains information needed to answer important scientific research questions and that 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, or

3. Is directly associated with a scientifically recognized important prehistoric or historic event or person.

In addition to meeting one or more of the above criteria, resources eligible for listing in the CRHR must retain enough of their historic character or appearance to be recognizable as historical resources and to convey the reasons for their significance. Integrity is evaluated with

regard to the retention of location, design, setting, materials, workmanship, feeling, and association (California Office of Historic Preservation 1999:69–70).

3.5.3 Methods

Preliminary background information was obtained through a review of the existing documentation provided by DWR. Subsequent research focused on reviews of regional histories, historic maps and photographs of the APE. Background research also included a records search conducted by the Northwest Information Center (NWIC) of the California Historical Resources Information System (CHRIS), Native American consultation, and contact with the local historical society. Subsequent tasks included intensive field surveys of the APE and documentation of the archival and field investigations.

RECORDS SEARCH RESULTS AND FINDINGS

A records search for existing cultural information within the APE and a 0.25-mile radius (study area) of the project was conducted at the CHRIS NWIC at Sonoma State University in Rohnert Park. The search was conducted to determine previous survey coverage in the project area, identify all previously recorded resources within the study area, and to help determine sensitivity for archeological resources. The records search included a review of:

- Office of Historic Preservation Historic Property Data File (2011)
- Determination of Eligibility (2011)
- NRHP/CRHR listing (2006 and updates)
- California Inventory of Historic Resources (1976)
- Historic era and General Land Office (GLO) maps

The records search results indicated that 11 previous investigations have been conducted within the APE. Nine studies have been conducted within the 0.25-mile buffer. A summary of the 11 previous investigations is provided in Table 1. Table 2 includes information on Previously Conducted Investigations within a 0.25-mile radius.

Table 2
Previously Conducted Investigations within the APE

NWIC#	Title	Author and Year	Identified Resource in the APE	Eligibility Status
121	An Archaeological Reconnaissance of the Proposed Altamont Landfill Site, Alameda County, California	Frederickson, David A. and Peter M. Banks, 1975	None	-

5862	An Archaeological Reconnaissance of the Proposed Fayette Manufacturing Company Wind Farm on the Morgan, Shuff, Haera and Costello Properties, Altamont Pass, Alameda County, California	Holman, Miley Paul, 1982	None	-
6007	Archaeological Survey of the Wind Energy Company Project Area near Altamont Pass, Alameda County, California	Frederickson, David A., 1983	None	-
6125	An archaeological reconnaissance of the Ralph Properties Windfarm project area, Altamont Pass, Alameda County, California.	Holman, Miley Paul, 1983	None	-
7075	Santucci Property Archaeological Reconnaissance (letter report)	Holman, Miley Paul, 1984	None	-
8942	Archeology of the California State Water Project	Ruckle, J. T., 1974	None	-
10509	Class III Intensive Archaeological Field Reconnaissance of the Kellogg Reformulation Unit, Highline Canal Alternative, Contra Costa and Alameda Counties	Jensen & Associates, 1986	None	-
S-14597	Cultural Resources Assessment of the 230 kV Bethany Compressor Station Tap Project, Alameda County, California	Fong, Michael R. and Donna M. Garaventa, Stuart A. Guedon, Steven J. Rossa, David G. Brittin, 1991	None	-
18762	Cultural Resources Evaluation of the Proposed Mountain House Planned Community, Alameda and San Joaquin Counties, California	Archeo-Tec, 1989	None	-
29590	Cultural Resource Assessment of the South Bay Aqueduct Improvement and Enlargement Project, Alameda County, California.	Brown, Kyle, and Adam Marlow, Thomas Young, James Allan, Wiilam Self, 2004	None	-
35187	Archaeological Survey Report, Clifton Court Forebay Delta Maintenance Project	Tiffany A. Schmid, 2008	None	-

Note:

6Y - Determined ineligible for NR by consensus through Section 106 process – Not evaluated for CR or Local Listing.

Source: Compiled by AECOM 2013

Table 2 Previously Conducted Investigations within the 0.25-mile radius				
NWIC#	**Title**	**Author and Year**	**Identified Resource in the 0.25-mile radius**	**Eligibility Status**
5657	An Archaeological Reconnaissance of Six Windfarm Parcels Near Altamont Pass, Alameda County, California	Holman & Associates, 1982	None	-
5869	An Archaeological Field Reconnaissance of Portions of the Stewart and Souza Ranches, Contra Costa and Alameda Counties, California (letter report)	Matthew R. Clark, 1993	None	-
6489	Archaeological Reconnaissance of the Gomes North Parcel, Alameda County, California.	Holman & Associates, 1984	None	-
6502	Proposed Windfarm at Christensen and Kelso Roads (letter report)	Holman & Associates, 1984	None	-
9119	Cultural Resources Investigations and Intensive Survey for the Lawrence Livermore Direct Service 230-kV Transmission Line	J.F. Sato & Associates, 1987	P-01-177, P-01-178	6Y
9995	Cultural Resources Investigtions for the Tracy-Banks Transmission Line, Alameda County, California	J.F. Sato and Associates, Inc., 1988	None	-
10724	Report of the Cultural Resources Assessment of the Proposed San Joaquin Valley Pipeline	Peak & Associates, Inc., 1986	None	-
35796	Cultural Resources Investigation and Architectural Evaluation of the Pittsburg-Tesla Transmission Line, Contra Costa and Alameda Counties, California	Garcia and Associates, 2009	P-01-010947, P-01-010955, P-01-010956, P-01-010957	Not evaluated
Note: 6Y - Determined ineligible for NR by consensus through Section 106 process – Not evaluated for CR or Local Listing. Source: Compiled by AECOM 2013				

The records search identified one previously recorded resource in the APE. Resource P-01-10947 is the Pittsburg-Tesla Transmission Line, constructed in 1959-1960. This resource crosses through the APE on the southwest portion near the SBPP. The survey for report #35796 which identified P-01-10947 was conducted outside the APE, however, the resource is linear which causes it to be in the APE.

Resources P-01-177, 178, 10955, 10956, 10957, and 10958 are located within the 0.25-mile APE buffer. P-01-178 (CA-Ala-456) is the only prehistoric resources located within the 0.25-mile radius. This resource consists of a rock shelter with four bedrock mortars which was recorded in

1984. The remaining resources consist of a historic homestead (P-01-177/CA-Ala-455H), a historic-era corral (P-01-010955), a historic-era wood, metal, and barbed wire fence segment (P-01-01956), and the remnants of an abandoned corral (P-01-01957).

NATIVE AMERICAN CONSULTATION

As part of the CEQA and Section 106 analysis for the projects, DWR consulted with the Native American Heritage Commission (NAHC) on December 3, 2012 requesting information for the Sacred Lands File & Native American Contacts List pertinent to the project area. A response from the NAHC noted that a search of the sacred lands files failed to indicate the presence of any known Native American cultural resources or traditional cultural places in or near the project site. The NAHC also provided contact information of groups or individuals who may have knowledge of cultural resources in the area. Letters were sent to these groups or individuals on January 3, 2013 requesting information on any traditional cultural properties or values within or near the project area. DWR indicated that no responses from individuals or groups were received. Follow-up telephone calls were attempted, and messages were left for each of the contacts. No responses to the messages have been received. Copies of the consultation letters can be found in Appendix A of this report.

FIELD SURVEYS

AECOM archaeologists conducted an intensive pedestrian survey consisting of meandering transections of approximately 5 meters of the APE on October 3 and October 15, 2013. The crew carried iPads loaded with Google Earth, as well as aerial and topographic maps of the project APE. All portions of the archaeological APE were subject to intensive survey. Due to the natural layout of the APE, meandering transects were used instead of evenly spaced metered transects. Visibility on the road segments, parking lot, and other areas exhibiting traffic use was excellent. Ground visibility was poor due to thick, high grasses at all dam locations and staging area. No prehistoric cultural resources were identified within the project area.

On October 3 and October 15, 2013 an AECOM architectural historian conducted a field survey of the project area to record buildings and/or structures more than 45 years in age. Three resources, Bethany Reservoir (and associated features), SBPP, and Christensen Road Bridge, were inventoried and recorded on the appropriate California Department of Parks and Recreation Series 523 forms, which are included in Appendix C of this report.

3.5.4 Discussion

a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?

No Impact. The California Aqueduct is not listed on the National Register or the California Register and DWR does not regard the California Aqueduct as a historical resource. The Bethany Reservoir, the SBPP, and the Christensen Road Bridge, which are associated with the SWP and the California Aqueduct, are also not listed on the National Register or the California Register and DWR does not regard these features to be historical resources.

Under CEQA, a significant effect would occur if the proposed project results in a substantial adverse change in the significance of a historical resource. The significance of a historical resource is materially impaired when a proposed project demolishes or materially alters in an adverse manner those physical characteristics that convey its historical significance. DWR has located a Caltrans letter wherein Caltrans stated and, in July of 2012, SHPO staff similarly stated that the California Aqueduct was eligible for listing in the National Register (P-19-004154). That document describes a significant water distribution system, its remarkable engineering aspects, and its role in California history. DWR does not agree with the Caltrans letter, and does not regard the California Aqueduct as a historical resource. However, this point is ultimately not critical. As the analysis below shows, the proposed project would not have a significant effect even if the California Aqueduct were a historical resource.

The Bethany Reservoir (and associated dams, toe drains, and weir) is a wide reach of the California Aqueduct that has engineering significance for its role in water conveyance and redistribution as part of the SWP. The SBPP was constructed as part of the South Bay Aqueduct, one of the three aqueducts constructed for the SWP. The Christensen Road Bridge was built as part of the California Aqueduct and was a planned and character-defining feature of the California Aqueduct and the SWP. The SWP and the California Aqueduct are significant as comprehensively planned and publicly sanctioned water conveyance public works projects that facilitated development throughout California and for the complex design necessary to redistribute water throughout California. The abandoned, interim canal of the South Bay Aqueduct was intended to be a temporary canal used only until the California Aqueduct was completed. Furthermore, it has lost integrity since its construction. Therefore, it is not eligible for listing in either the National Register or the California Register and is not considered a historical resource under CEQA. Implementing the project would not alter the Bethany Reservoir (and associated features), the SBPP, or Christensen Road Bridge or diminish any character-defining features of the three resources, including the dams, toe drains, width of the reservoir, pumps of the pumping plant, and the pre-stressed concrete and width of the bridge.

The resources would retain sufficient historic materials and integrity to reflect their significance. The proposed project would not result in direct effects to character-defining features of the California Aqueduct and there will be no demolition or substantial alteration. The California Aqueduct would be unaltered and all of the California Aqueduct's basic facilities would remain intact after implementation of the proposed project. Therefore, there would be no impact.

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

Less-than-Significant impact with Mitigation Incorporated. An archaeological survey conducted by AECOM archaeologists resulted in the identification of no archaeological resources in the APE. Although archival and field research revealed no archaeological resources within the APE, undiscovered subsurface cultural remains, although extremely unlikely, may nevertheless be present in the area and could be disturbed by the proposed projects. Given the lack of identified prehistoric remains and geomorphic conditions that suggest a low potential for their presence, the APE appears to possess a low level of sensitivity for containing Native American sites, features, and artifacts. Nevertheless, it is possible that previously undiscovered or unknown cultural remains exist at the site and could be encountered or uncovered during project construction. Therefore, this impact would be considered potentially significant. However, with implementation Mitigation Measure Cul-1 in the unlikely event that archaeological resources are discovered during project-related construction activities, this potential impact would be reduced to a less-than-significant level.

Mitigation Measure Cul-1: Halt Ground-Disturbing Construction Activities if Cultural Materials Are Discovered

The following measures shall be implemented to avoid or minimize potential impacts to cultural materials:

- If a discovery of cultural materials (e.g., unusual amounts of shell, animal bone, flaked stone, bottle glass, ceramics, structure/building remains, etc.) is encountered during project construction, ground disturbances in the immediate vicinity of the find shall be halted immediately and a qualified professional archaeologist shall be notified regarding the discovery. The archaeologist shall determine whether the resource is potentially significant as per the CRHR and identify appropriate management steps needed to protect and secure identified resources.

c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

No impact. Project-related earth-moving activities (i.e., grading) would take place in imported soils that were filled and compacted to form the existing dams and the existing unpaved roads. Any unique paleontological resources that may have been present in those fill materials would have been destroyed during the previous construction process. Therefore, the project would have no impact on unique paleontological resources or unique geologic features.

d) Disturb any human remains, including those interred outside of formal cemeteries?

Less-than-Significant with Mitigation Incorporated. No evidence of human remains at the project site was found in documentary research, and it is extremely unlikely that buried human remains are present. Furthermore, project activities do not require excavation which would have the potential to unearth buried human remains. Nevertheless, it is possible that presently unknown prehistoric burials exist, and could be uncovered during project construction. Therefore, this impact would be considered potentially significant. However, with implementation Mitigation Measure Cul-1 in the unlikely event that archaeological resources are discovered during project-related construction activities, this potential impact would be reduced to a less-than-significant level. Nevertheless, proposed ground-disturbing activities on the project site could adversely affect presently unknown prehistoric burials. California law recognizes the need to protect interred human remains, particularly Native American burials and associated items of patrimony, from vandalism and inadvertent destruction. In light of the potential to uncover unknown or undocumented Native American burials, this impact would be potentially significant. Implementation of Mitigation Measure Cul-2 would reduce this impact to a less-than-significant level.

Mitigation Measure Cul-2: Halt Construction Activities if Any Human Remains Are Discovered

The following measures shall be implemented to avoid or minimize potential impacts to human remains:

The procedures for the treatment of discovered human remains are contained in Sections 7050.5 and 7052 of the California Health and Safety Code and Section 5097 of the California Public Resources Code.

- In accordance with the California Health and Safety Code, if human remains are uncovered during ground disturbing activities, such activities that may affect the remains shall be halted and DWR or its designated representative shall be

notified. DWR shall immediately notify the county coroner and a qualified professional archaeologist. If the coroner determines that the remains are those of a Native American, the coroner must contact the NAHC by phone within 24 hours of making that determination (Health and Safety Code, Section 7050[c]).

- DWR's responsibilities for acting upon notification of a discovery of Native American human remains are identified in detail in Section 5097.9 of the California Public Resources Code. DWR or its appointed representative and the professional archaeologist shall consult with a Most Likely Descendant (MLD) determined by the NAHC regarding the removal or preservation and avoidance of the remains and shall determine whether additional burials could be present in the vicinity.

Assuming that an agreement can be reached between the MLD and DWR or their representative with the assistance of the archaeologist, these steps would minimize or eliminate adverse impacts on the uncovered human remains.

3.6 Geology and Soils

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
VI. Geology and Soils. 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 California Geological Survey 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, as updated), creating substantial risks to life or property?	☐	☐	☒	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒

3.6.1 Environmental Setting

Bethany Dams 1 through 4 are constructed with internal sloping and horizontal drains consisting of granular and filter material designed to intercept and convey seepage to 12-inch diameter perforated drain pipes. These pipes convey internal seepage to concrete drainage outlet structures located at the toe of each dam. Seepage then flows into drainage ditches that were constructed with a 1:1 side slope and an 8-foot base width. These drainage ditches convey flows away from the toe of the dam to natural drainage courses. The topography at the project site consists of slopes along the waterside and landsides of the dam faces, as well as the surrounding watershed system with level ground on the tops of the dams.

3.6.2 Discussion

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 California Geological Survey Special Publication 42.)

No impact. The Bethany Reservoir and the project vicinity are not located within an Alquist-Priolo Earthquake Fault Zone (CA Geological Survey 2010). Furthermore, there are no known faults that pass through or are immediately adjacent to the project site. Therefore, project activities at this location would not expose people or structures to risk of loss, injury, or death due to a rupture of a known earthquake fault. There would be no impact.

ii) Strong seismic ground shaking?

Less-than-significant impact. The Midland Fault is located approximately 4.5 miles southeast of the project site, the Vernalis Fault is approximately 12 miles east, and the Midway Fault is approximately 1.5 miles south. The closest active fault is the Greenville Fault, which is located 4.5 miles to the west of the project site. The most recent seismic event occurred in January of 1980, when two earthquakes of Richter magnitude 5.5 and 5.8 occurred along this fault (McJunkin and Ragsdale 1980). The Midland Fault and Vernalis Fault have not been active in the last 1.6 million years and the Midway fault was last active 700,000 years ago (CA Geological Survey 2012). Therefore, strong seismic ground shaking is unlikely at the project location, and impacts would be less than significant.

iii) Seismic-related ground failure, including liquefaction?

Less-than-significant impact. The sediments in the area of the Bethany Reservoir consist mainly of Altamont Rocky Clay and Altamont Clay, which are deep, well-drained soils. According to the United States Geological Survey (USGS) Susceptibility Map of the San Francisco Bay Area, the proposed activities are located in a region designated as a very low to low risk of liquefaction.

The soil composition at the site coupled with distance from a recently active fault, make the risk of seismic-related ground failure unlikely, and this impact would be less than significant.

iv) Landslides?

Less-than significant impact. The project sites are located in an area designated by the Alameda County General Plan Safety Element to be "least susceptible" to landslide risk and there are no mapped areas of landslide deposits larger than 200 feet. The criteria used to delineate the relative hazard areas included the nature of the geologic materials underlying the surface, the steepness of slopes, the presence or absence of visible slope failures, and the presence or absence of active forces that could cause failures. Although there are faults in the vicinity of the project site and the topography consists of sloped ridges, the risk is very low, and the impact would be less than significant.

b) Result in substantial soil erosion or the loss of topsoil?

Less-than-significant impact. The project consists of grading and compaction of an area of land less than 1 acre and mostly consisting of existing unpaved roads. Therefore, this impact would be less than significant.

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?

Less-than-significant impact. As discussed in section a, the project is located in an area designated as "least susceptible" to landslide risk, "very low risk" of liquefaction, and there are no known faults that pass through or are immediately adjacent to the project site. Therefore, this impact would be less than significant.

d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994, as updated), creating substantial risks to life or property?

Less-than-significant impact. There are to be no structures built on or along the Bethany reservoir with the exception of the seepage monitoring weir replacement. A major component of the seepage monitoring weir replacement is to excavate to solid non-expansive soil to set the foundation for the weir. Although all clay soils are considered expansive, Altamont rocky clay is not considered highly expansive. Therefore, this impact would be less than significant.

e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

No impact. The proposed project would not require the use of septic tanks or alternative wastewater disposal systems; therefore, there would be no impact.

3.7 Greenhouse Gas Emissions

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
VII. 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?	☐	☐	☒	☐

3.7.1 Environmental Setting

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, § 15064, subd. (h)(3).)

More specifically, "later 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 greenhouse gas 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 § 15183.5, subd. (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 construction of the proposed project , 2) determination that the construction 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 as Appendix A, documenting that the project has met each of the required elements.

3.7.2 Discussion

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Less-than-significant impact. Based on the analysis provided in the GGERP and the demonstration that the proposed project is consistent with the GGERP (as shown in the attached Consistency Determination Checklist), 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.

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Less-than-significant impact. The State CEQA Guidelines require environmental analyses to evaluate both the level of GHG emissions associated with construction and operation of a project and the project's consistency with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions.

DWR has developed a "Climate Action Plan Phase 1: Greenhouse Gas Emissions Reduction Plan" (GGERP) to guide its efforts in reducing GHG emissions (DWR 2012b). The GHG emissions reduction measures proposed in the Plan were developed for the purpose of reducing emissions of GHGs in California as directed by Executive Order (EO) S-3-05 and AB 32. DWR has established the following GHG Emissions Reduction Goals:

- Reduce GHG emissions from DWR activities by 50% below 1990 levels by 2020; and
- Reduce GHG emissions from DWR activities by 80% below 1990 levels by 2050.

Pre-construction and Final Design BMPs from the GGERP are designed to ensure that individual projects are evaluated and their unique characteristics taken into consideration when determining if specific equipment, procedures, or material requirements are feasible and efficacious for reducing GHG emissions from the project. Some of the BMPs listed in the GGERP (BMPs 3, 4, 11, 12, and 13) were not included in this document since they were not applicable to this project. All variances from the GGERP were approved by the DWR CEQA Climate Change Committee (see GGERP Consistency Determination form).

The proposed project would implement the following Pre-construction and Final Design BMPs:

- **BMP 1**. Evaluate project characteristics, including location, project work flow, site conditions, and equipment performance requirements, to determine whether specifications of the use of equipment with repowered engines, electric drive trains, or other high efficiency technologies are appropriate and feasible for the project or specific elements of the project.
- **BMP 2**. Evaluate the feasibility and efficacy of performing on-site material hauling with trucks equipped with on-road engines.
- **BMP 5**. Evaluate the performance requirements for concrete used on the project and specify that batch plants be set up on-site or as close to the site as possible.
- **BMP 6**. Limit deliveries of materials and equipment to the site to off peak traffic congestion hours.

According to the GGERP, all DWR projects are expected to implement all construction BMPs unless a variance is granted and approved by the DWR CEQA Climate Change Committee (DWR 2012b). Therefore, the proposed project will incorporate the following BMPs into the project design:

- **BMP 7**. Minimize idling time by requiring that equipment be shut down after five minutes when not in use (as required by the State airborne toxics control measure [Title 13, Section 2485 of the California Code of Regulations]). Provide clear signage that posts this requirement for workers at the entrances to the site and provide a plan for the enforcement of this requirement.
- **BMP 8**. Maintain all construction equipment in proper working condition and perform all preventative maintenance. Required maintenance includes compliance with all manufacturer's recommendations, proper upkeep and replacement of filters and mufflers, and maintenance of all engine and emissions systems in proper operating condition. Maintenance schedules shall be detailed in the Air Quality Control Plan prior to commencement of construction.
- **BMP 9.** Implement tire inflation program on jobsite to ensure that equipment tires are correctly inflated. Check tire inflation when equipment arrives on-site and every two weeks for equipment that remains on-site. Check vehicles used for hauling materials off-

site weekly for correct tire inflation. Procedures for the tire inflation program shall be documented in an Air Quality Management Plan prior to commencement of construction.

- **BMP 10.** Develop a project specific ride share program to encourage carpools, shuttle vans, transit passes and/or secure bicycle parking for construction worker commutes.
- **BMP 14.** Develop a project specific construction debris recycling and diversion program to achieve a documented 50% diversion of construction waste.
- **BMP 15.** Evaluate the feasibility of restricting all material hauling on public roadways to off-peak traffic congestion hours. During construction scheduling and execution minimize, to the extent possible, uses of public roadways that would increase traffic congestion.

The proposed project would not conflict with the AB 32 Scoping Plan, the BAAQMD CEQA guidelines, GGERP, or any other plans, policies, or regulations for the purpose of reducing GHG emissions. Based on the analysis provided in the GGERP and the demonstration that the proposed project is consistent with the GGERP (as shown in Appendix A), 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, the impact would be less than significant.

The proposed project will have a less than significant impact because it conflicts with some the BMPs of the GGERP. All applicable Project Level GHG Emissions Reduction Measures have been incorporated into the design or implementation plan for the project and Measures not incorporated have been listed and determined not to apply to the proposed project (see Consistency Determination form).

3.8 Hazards and Hazardous Materials

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
VIII. 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/or 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?	☐	☐	☒	☐

3.8.1 Environmental Setting

Operation and maintenance of existing facilities at Bethany Reservoir requires the use of minor amounts of hazardous materials, typically in the form of fuel and lubricants for construction equipment.

3.8.2 Discussion

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Less-than-significant impact. Construction of the proposed project would not require extensive or on-going use of acutely hazardous materials or substances. Project activities would involve limited transport, storage, use, or disposal of hazardous materials. Some examples of hazardous materials handling include fueling and servicing construction equipment on-site, and the transport of fuels, lubricating fluids, and solvents. These types of materials, however, are not acutely hazardous, and all storage, handling, and disposal of these materials is regulated by the California Department of Toxic Substances Control (DTSC), U.S. Environmental Protection Agency, California Environmental Protection Agency, and the Occupational Safety & Health Administration.

Operation of the proposed project would be consistent with existing practices. All hazardous materials would be stored and used in accordance with applicable federal, state, and local regulations. In addition, proper spill management, including response plans and spill kits, would be implemented and maintained onsite, as is currently required by DWR. None of the project components would generate new sources of hazardous materials. Accordingly, impacts related to the routine use of hazardous materials would be less than significant.

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials into the environment?

Less-than-significant impact. As noted in (a) above, similar hazardous materials associated with the current maintenance of Bethany Reservoir Dams will be used for the proposed project. Therefore, implementation of the proposed project would not increase the risk of the release of hazardous materials into the environment, and this impact would be less than significant.

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

No impact. The nearest school to the project area is Mountain House Elementary School, located in Byron approximately 1.65 miles east of the proposed project. There will be no hazardous emissions or the handling of hazardous or acutely hazardous materials, substances, or wastes within one-quarter mile of an existing or proposed school. Therefore, there would be no impact.

d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code §65962.5 and, as a result, would it create a significant hazard to the public or the environment?

No impact. The Hazardous Waste and Substances Sites List (Cortese List) is compiled by the California Department of Toxic Substances Control (DTSC) in accordance with California Government Code Section 65962.5. A search of the Cortese List and search for sites with reported hazardous material spills, leaks, ongoing investigations and/or remediation near the project site was performed using the DTSC online EnviroStor database (DTSC 2013) and the State Water Resources Control Board GeoTracker database (SWRCB 2013). The search of site listings within the GeoTracker database identified the nearest hazardous material listing approximately 0.77 miles northeast (near the intersection of Bruns Road and Kelso Road). The site identified, Byron Power Company, is a cleanup program site with an open case still in site assessment. Potential contaminants of concern include diesel, gasoline, waste oil, motor oil, hydraulic fluid, and lubricating fluids. Soil samples and groundwater samples were collected at the site and some remediation and cleanup has occurred. Only the soil was found to be contaminated and due to the type of contamination, the site being down gradient from the project area, and the distance to the project area, this site record is not a concern for the project. There were other records identified in the database searches but all were considerably further from the project site and even less likely to be a concern. Considering the distance to the nearest hazardous material listing, no impact would occur.

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?

No impact. The project site is not located within two miles of a public airport. The Contra Costa County Byron Airport is the nearest public airport and is over 3 miles north from the project site. The Contra Costa County Airport Land Use Compatibility Plan (2000) describes all Byron Airport compatibility polices to ensure safety hazards are addressed within the plan area. Because all project activities would be located outside of the Byron Airport Land Use Compatibility Plan area, there would be no impact.

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?

No impact. As noted in item (e) above, the closest airport to the proposed project would be the Byron Airport, which is a public airport. No private airstrips are in the vicinity of the project site. Thus, no impacts to private airstrips or people residing near an airstrip would occur.

g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

No impact. During the project period, emergency response routes and plans would not be impacted by construction activities at the project site. The proposed project would not require

any road or land closures during maintenance procedures. The proposed project would not impair or interfere with emergency access to Bethany Reservoir, including any emergency response or evacuation routes. No impact would occur.

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?

Less-than-significant impact. The project site is located within a moderate fire hazard zone. The project construction contractor would be required to develop a fire protection and prevention plan which incorporates fire safety measures (e.g., spark arrestors, mufflers) on all equipment with the potential to create a fire hazard. The plan would ensure that fire suppression equipment is onsite and that all construction employees have received appropriate fire safety training. With implementation of the fire safety measures the impact would be less than significant.

3.9 Hydrology and Water Quality

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
IX. 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 that would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☒	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial on- or off-site erosion or siltation?	☐	☐	☒	☐
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in on- or off-site flooding?	☐	☐	☒	☐
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?	☐	☐	☐	☒

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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) Result in inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

3.9.1 Environmental Setting

The Bethany dams were designed as homogenous rolled earth-filled dams with internal drainage systems. Bethany Reservoir serves as a Forebay for the South Bay Aqueduct Pumping Plant and as an afterbay for the Harvey O. Banks Pumping Plant within the Clifton Court Forebay system. The Bethany Reservoir also serves as a conveyance facility in this reach of the California Aqueduct and provides water-related recreational opportunities.

3.9.2 Discussion

a) Violate any water quality standards or waste discharge requirements?

Less-than-significant impact. This project is likely to result in localized, short-term impacts to water quality. The seepage monitoring weir replacement could result in siltation due in part to disturbance of the flow of water through the seepage into the local drainage during construction of the permanent concrete weir. The seep and seepage are located within the canyon north of the Bethany Forebay Dam's left abutment. Construction activities could possibly cause siltation in the flow of water through the seepage, which could introduce increased amounts of silt into the local drainage; however this is expected to be temporary and proper erosion control measures are expected to be put in place. Additionally, DWR will adhere to the requirements of the Regional Water Quality Control Board. Therefore, impacts related to water quality during the proposed activities would be less than significant.

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 that would not support existing land uses or planned uses for which permits have been granted)?

Less-than-significant impact. The proposed project would not use groundwater during construction (e.g., dust control, vehicle washing) or operations. Additionally, although the project would result in grading and compaction of approximately 0.98 acre of existing un-improved roads, they will be covered with a porous material (aggregate base). This action would be minor and would not interfere with groundwater recharge; therefore, this impact would be less than significant.

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial on- or off-site erosion or siltation?

Less-than-significant impact. The project would not significantly increase drainage flow or substantially alter the existing drainage patterns in the area. This project will comply with the requirements of a Construction General Permit, to ensure that sediment from disturbed areas would not result in significant impacts; therefore, this impact would be less than significant.

d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in on- or off-site flooding?

Less-than-significant impact. As discussed in (b) and (c) the project would not be expected to alter existing drainage patterns or increase runoff. Thus, this project would not contribute to an increase in on- or off-site flooding. This impact would be less than significant.

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?

Less-than-significant impact. There is a potential for a release of pollutants into adjacent waters from equipment used for the proposed projects (dump truck, pumps, portable mixer, crane, and backhoe). Work will be conducted by hand crews and with hand tools as much as possible and equipment with the potential for a release will not be operated within the waterways. Mitigation Measures AQ-1 and Bio-1 include measures for making sure equipment is in proper working order and remediating any issues immediately. Therefore, this impact would be less than significant.

f) Otherwise substantially degrade water quality?

Less-than-significant impact. As discussed in a), c), and e) above, the proposed project would not substantially degrade water quality and this impact would be less than significant impact.

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?

No impact. The proposed project would not provide new housing. Because the proposed project would not include the addition of any housing, nor is it located within a 100-year flood hazard area, there would be no impact.

h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?

No impact. The project area is not located within the 100-year floodplain. The proposed project would not place any structures that would impede or redirect flood flows; therefore, there would be no impact.

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?

Less-than-significant impact. This proposed project will aid in improving dam safety. There are no known faults that pass through or are immediately adjacent to the project site. The project does not propose any excavation into the dam faces and the proposed project is not located in a high seismic zone. This would be a less than significant impact.

j) Result in inundation by seiche, tsunami, or mudflow?

No impact. The proposed project would not affect the existing risk for seiche or tsunami to occur and would not increase populations located with an area subject to seiche or tsunami. There would be no impact.

3.10 Land Use and Planning

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
X. Land Use and 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, a 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?	☐	☐	☐	☒

3.10.1 Environmental Setting

The project area is located in lands designated as Outside Urban Growth Boundary and categorized as Parklands in the Alameda County General Plan, East County Area. The surrounding land use is designated as a wind resources area. Surrounding land uses include agriculture, recreation and open space areas, and the State Water Project.

3.10.2 Discussion

a) Physically divide an established community?

No impact. The proposed project area is entirely located on DWR property. The project would not alter the existing use of the site and would not divide an established community. There would be no impact.

b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, a general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

No impact. The project area is owned and maintained by DWR. The proposed project falls under maintenance requirements necessary to ensure the proper and safe operation of Bethany Dams. Implementation of the proposed project would not alter or change the existing land use or water conveyance operations of DWR. Thus, the proposed projects would not conflict with any land use policies or regulations, and no impacts would occur.

c) Conflict with any applicable habitat conservation plan or natural community conservation plan?

No impact. There are no approved HCPs or NCCPs that cover the project area. Thus, there would be no impact.

3.11 Mineral Resources

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XI. 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?	☐	☐	☐	☒

3.11.1 Environmental Setting

The project area is located in Alameda County, approximately 9 miles northwest of the city of Tracy at the western edge of the Central Valley, approximately 9 miles east of the Coast Ranges. The California Department of Conservation, California Geological Survey (CGS) conducts Mineral Land Classification surveys which designate land areas, such as mineral resources zones or aggregate resources zones. The CGS has mapped aggregate availability in the state, and no aggregate resources zones have been identified on or within the vicinity of the project. The project area is not located in an area of known or significant mineral resources.

3.11.2 Discussion

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?

No impact. No known mineral resources, mineral resource recovery sites, or aggregate resource zones are located on the project sites. The project area has not been designated by the CGS as an area of known mineral resources. The proposed project would not result in impacts related to the loss of availability of a known mineral resource or mineral recovery site. Therefore, implementation of the project would have no impact to mineral resources.

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?

No impact. There are no mineral resources or mineral recovery sites identified in the Alameda County General Plan, East County Area Plan (ECAP) or other local land use plans on or near the project sites. The proposed projects would not result in impacts related to 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. Therefore, implementation of the project would have no impact to mineral resource recovery zones.

3.12 Noise

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XII. Noise. Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or in other applicable local, state, or federal standards?	☐	☐	☒	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
d) 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 or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

3.12.1 Environmental Setting

Existing noise sources in the project area include distant traffic, agricultural operations, wildlife vocalizations, wind, and moving water within the reservoir.

Construction noise is exempt from Alameda County ordinances as long as work is performed after 7:00AM and before 7:00PM on any day, except Saturday or Sunday on which work shall not take place before 8:00AM and after 5:00PM.

3.12.2 Discussion

a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or in other applicable local, state, or federal standards?

Less-than-significant impact. Construction noise levels would fluctuate depending on the particular type, number, and duration of usage of the varying equipment. The effects of noise largely depend on the type of maintenance activities occurring on any given day, noise levels generated by those activities, distances to noise-sensitive receptors, and the existing ambient noise environment near the receptor. On-site maintenance equipment used during site preparation would include excavators, dozers, backhoes, and trucks.

Noise from localized point sources (such as construction sites) typically decreases with distance from source to receptor. The nearest residential receptor is approximately 1.5 miles east of the limits of construction. The softer, pervious ground, such as the agricultural fields, that exist between the proposed project and the nearest residential receptor act to reduce sound. Due to the terrain and the distance to the nearest residence, this impact would be less than significant.

b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

Less-than-significant impact. Construction activities in the project area may result in varying degrees of temporary ground vibration, depending on the specific construction equipment used and operations involved.

Groundborne noise impacts occur due to the vibration of structures. Due to the proximity to the nearest structure and the minor nature of the project, groundborne noise impacts would be less than significant.

c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

Less-than-significant impact. Elevated noise would cease at the end of the project activity and would not result in a permanent increase in ambient noise levels in the project area.

The proposed project would not affect traffic noise because the project would not result in substantial traffic generation during construction and would not impact traffic during operation. Based on the distance to the nearest residence, noise levels would not measurably increase ambient noise levels at the nearest residence. This impact would be less than significant.

d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

Less-than-significant impact. Temporary increases in noise levels due to the project are associated with construction activities. Operation would not result in significant changes to existing ambient noise levels. This impact would be less than significant.

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 expose people residing or working in the project area to excessive noise levels?

No impact. The project site is not located within two miles of a public airport. The Contra Costa County Byron Airport is located over 3 miles north of the project site. The Contra Costa County Airport Land Use Compatibility Plan (2000) describes all Byron Airport compatibility polices to ensure safety hazards are addressed within the plan area. Because all project activities would be located outside of the Byron Airport Land Use Compatibility Plan area and the project would not affect any airport operations, the project would not expose people on- or off-site to excessive noise levels. Therefore, there would be no impact related to airport noise.

f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

No impact. As noted in item (e) above, the closest airport to the proposed project would be the Byron Airport, which is a public airport. No private airstrips are in the vicinity of the project site, and the project would not affect any airstrip operations. Therefore, the proposed project would not expose people on- or off-site to excessive noise levels, and would have no impact to private airstrip noise.

3.13 Population and Housing

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XIII. 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 homes, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

3.13.1 Environmental Setting

The project site includes the Bethany Reservoir, and associated infrastructure. Canals and agricultural open space surround the project site and no housing exists near the project site.

3.13.2 Discussion

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)?

No impact. The proposed project would include the maintenance activities at Bethany Reservoir Dams to maintain dam safety. All of the maintenance work for the project will not increase or extend the established infrastructure. Accordingly, the proposed project would not induce population growth in the area, and there would be no impact.

b) Displace substantial numbers of existing homes, necessitating the construction of replacement housing elsewhere?

No impact. The proposed project would not displace any existing housing. Therefore, the proposed project would not result in impacts to housing nor necessitate the construction of replacement housing. No impact would occur.

c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

No impact. The proposed project would not displace any people, or result in the need for replacement housing. No impact would occur.

3.14 Public Services

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XIV. Public Services. Would the project:				
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, 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 public services:				
Fire protection?	☐	☐	☐	☒
Police protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

3.14.1 Environmental Setting

Fire protection and police protection services in the unincorporated areas of Alameda County are provided by the Alameda County Fire Department and the Alameda County Sheriff's Department, respectively. Bethany Reservoir is accessible to boaters, pedestrians, and bicyclists for recreational opportunities, but the project site is not part of the recreational area.

3.14.2 Discussion

a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, 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 public services:

Fire protection?

No impact. The project site would continue to be served by the Alameda County Fire Department. The closest fire station, Station 98, located at 911 Tradition Street, Tracy, CA is

approximately 4.07 miles from the proposed project site. The maintenance activities of the proposed project would not require additional fire protection facilities and access to the site would be maintained during project activities in accordance with Alameda County fire policies and regulations. Therefore, no impacts related to fire protection services would occur as a result of the proposed project.

Police protection?

No impact. The Alameda County Sheriff's Patrol Division provides uniformed law enforcement services to residents in the unincorporated areas of Alameda County, including the area around Bethany Reservoir. The activities of the proposed project would not require additional police protection facilities or services. Therefore, no impacts related to police protection services would occur as a result of the proposed project.

Schools?

No impact. The proposed project would include routine maintenance activities around Bethany Reservoir and would not provide new housing or a large number of employment opportunities. Therefore, the proposed project would not generate new students or increase the demand on local school systems, and no impact to school services would occur.

Parks?

No impact. While Bethany Reservoir is a State Recreation Area (SRA) and is used by the public for boating, wind surfing, fishing, biking, and other sports, the project would only impact part of the Bethany Reservoir SRA that is not usually or easily accessed by the public. The public will still have access to all of the public areas of Bethany Reservoir SRA and this project will not be making new recreational areas or parks, so there will be no impact.

Other public facilities?

No impact. No other public facilities exist in the project area that would be affected by the project activities. There would be no impact to other public facilities.

3.15 Recreation

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XV. 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 facility 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?	☐	☐	☐	☒

3.15.1 Environmental Setting

The Bethany Reservoir State Recreation Area (SRA) is a popular place for water-oriented recreation, especially fishing and windsurfing. It also features a bike trail (along the California Aqueduct Bikeway). It is the northern terminus of the California Aqueduct. The proposed maintenance activities are taking place in areas around Bethany Reservoir that are not easily accessible and used by the public, and are not used for recreation.

3.15.2 Discussion

a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

No impact. The Bethany Reservoir SRA is used for water activities in the reservoir and biking along the trail. The proposed project is for maintenance activities for the Bethany Reservoir dams and existing infrastructure, as part of dam safety, and will not affect any of the existing recreational facilities in the Bethany Reservoir SRA. There would be no impact.

b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?

No impact. The proposed project is only for maintenance to the existing Bethany Reservoir dams and infrastructure. The proposed project will not impact the existing recreational facilities and is not constructing or expanding a recreational facility. There would be no impact.

3.16 Transportation/Traffic

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVI. Transportation/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?	☐	☐	☐	☒

3.16.1 Environmental Setting

Bethany Reservoir is accessible to the public via Bruns Road/Christensen Road. Bethany Reservoir has public boat access at the southern end of the dam, as well as a paved parking lot. There are picnic sites, non-flush toilets, two fishing platforms, and California Aqueduct bikeway access.

The areas of the proposed project locations around Bethany Reservoir are restrictive of public access by the use of gates (to the seeps) and the fact that there are no access roads to some of the locations (to the seepage monitoring weir and palm tree). Bruns Road/Christensen Road is located to the west of Byron Highway, which connects to the city of Byron to the north and to the city of Tracy to the south of the project site. The road also provides access to Interstate 205 to the south.

3.16.2 Discussion

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?

No impact. The proposed project would not adversely impact Bryon Highway, Bruns Road/Christensen Road, or any other local or regional roads in the vicinity of the project site. Haul truck trips would be required to dispose of the removed vegetation and sediment at a green waste facility. These trips would be staggered through the day during non-peak commute hours.

All construction equipment would be transported to the project site once and would be left in the staging area after each workday. There would also be a few dump truck trips to a green waste recycling facility to dispose of the vegetation removed. These trips would be staggered throughout the day during non-peak hours and would not adversely impact the surrounding circulation system. Thus, the impact on the surrounding circulation system would be minimal.

Public transit does not exist in the immediate vicinity of the project site. While bicycle and pedestrian facilities exist in the immediate vicinity of the project site, the proposed project would not affect public use of any of these facilities. Because worker commute trips would be minor during the project period, truck trips would be spread out throughout the workday, and no road closures or obstructions to standard roadway flow (including bicyclists and pedestrians) would be part of the proposed project, no adverse impact would occur on the circulation system in the project vicinity. There would be no impact.

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?

No impact. As noted in item (a) above, the proposed project would not adversely impact Byron Highway, Bruns Road/Christensen Road or any other local or regional roads in the project vicinity. The equipment would be stored between days within the staging areas and would be hauled in and out before and after the project components are completed. Haul truck trips would be required to dispose of the removed vegetation and sediment. These trips would be

staggered throughout the day during non-peak hours and would not adversely impact the surrounding circulation system.

Since the project is for maintenance activities in non-public areas of Bethany Reservoir, access to the site would not be substantially increased as a result of the proposed project. Therefore, traffic from the proposed project would not be expected to increase substantially compared to existing conditions at Bethany Reservoir. There would be no impact.

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?

No impact. The proposed project would not result in a change in air traffic patterns or result in any air safety risks. The proposed project is intended to properly maintain the Bethany Reservoir dams to ensure proper and safe operation. The maintenance of the proposed project would not include any aircrafts or develop any structures that would interfere with air traffic in the vicinity of the project. There would be no impact.

d**) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?**

No impact. The proposed project would not include any change to roadway design or incompatible uses in the project vicinity. The proposed project will improve access and create turnarounds for equipment on private access roads to maintain these areas of Bethany Reservoir. These would not be accessible to the public and do not create hazards due to their design. The proposed project is intended to properly maintain the Bethany Reservoir dams to ensure proper and safe operation. There would be no impact.

e) Result in inadequate emergency access?

No impact. Construction equipment that would be used for the proposed project, once transported to the project site, would not interfere with any emergency access on Byron Highway or Bruns Road/Christensen Road. The proposed project would not include any road or lane closures. There would be no impact.

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?

No impact. As noted in item (a) above, public transit does not exist in the immediate vicinity of the project site, but bicycle and pedestrian facilities do. Public access to the Bethany Reservoir SRA by pedestrians and bicyclists would not be impacted by the project, as the project sites are outside of the publicly accessible areas of the reservoir. Thus, the proposed project would not conflict with any adopted policies, plans, or programs for public transit, bicycle, and pedestrian facilities, and there would be no impact.

3.17 Utilities and Service Systems

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVII. Utilities and Service Systems. Would the project:				
a) Exceed 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 serves or may 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?	☐	☐	☐	☒

3.17.1 Environmental Setting

The project site and Bethany Reservoir do not currently generate wastewater or require the use of a wastewater treatment facility.

Bethany Reservoir is accessible to boaters, pedestrians, and bicyclists for recreational opportunities, with only permanent vault toilets are provided to support these activities.

3.17.2 Discussion

a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

No Impact. The proposed project would maintain non-public areas around Bethany Reservoir and would not be adding any restroom facilities. The restrooms currently accessible at Bethany Reservoir for the public are permanent vault toilets. As such, no modification to a wastewater treatment facility's current wastewater discharges would occur. No impact to wastewater treatment requirements of the Regional Water Quality Control Board would occur.

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?

No impact. Maintenance activities would utilize existing water supplies and would not generate wastewater. The proposed project would not require new water supplies and would not be building new restroom facilities. As such, no modification to a wastewater treatment facility's current wastewater discharges would occur. Accordingly, the project would not require the construction of new or expanded water or wastewater treatment facilities and no impacts would occur.

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?

No impact. No storm water drainage facilities are currently present at the site. None of the activities in the proposed project would create additional runoff. Activities at the site would not contribute substantial additional sources of polluted runoff during the maintenance activities. Because there is no increase in runoff and the potential for the release of pollutants is minor, no new storm water drainage facilities would be required. There would be no impact to storm water drainage facilities.

d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

No impact. The project activities would utilize existing water supplies and would not increase the current water use at the project site. Accordingly, the project would not require new or expanded entitlement and no impacts would occur.

e) Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand, in addition to the provider's existing commitments?

No impact. As noted in (a) above, the proposed project would not generate wastewater. There would be no impact.

f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

Less than significant impact. The vegetation and sediment removed from the project will be transported via dump truck to a nearby green waste facility and designated spoil sites. The amount of green waste generated by this project will not cause a green waste facility to exceed capacity. Therefore, the impact will be less than significant for the proposed project.

g) Comply with federal, state, and local statutes and regulations related to solid waste?

No impact. The vegetation and sediment removed from the project will be transported via dump truck to a nearby green waste facility and designated spoil sites. Because the proposed project would comply with all applicable federal, state, and local regulations, no impact would occur.

3.18 Mandatory Findings of Significance

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a.	Does the project 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.	Does the project have impacts that are individually limited but cumulatively considerable? ("Cumulatively considerable" meant that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of the other current projects and the effects of probable future projects)?	☐	☐	☐	☒
c.	Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☐	☒

3.18.1 Discussion

a) Does the project 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?

Less than significant with mitigation incorporated. Implementation of the mitigation measures recommended in this Initial Study would ensure that the construction and operation of the proposed project would not substantially degrade the quality of the environment; reduce the habitat, population, or range of a plant or animal species; or eliminate important examples of

California history or prehistory. Section 3.3, Air Quality, includes a mitigation measure to reduce construction-related emissions from off-road equipment and heavy-duty vehicles. Section 3.4, Biological Resources, includes mitigation measures to avoid and minimize impacts wildlife, special status plants, California tiger salamander, California red-legged frog, migratory and special status birds, San Joaquin kit fox, and jurisdictional waters of the United States and waters of the state. Mitigation is provided in Section V, Cultural Resources, in the event that unanticipated archeological or paleontological resources and/or human remains are identified in the project area during construction.

b) Does the project have impacts that are individually limited but cumulatively considerable? ("Cumulatively considerable" meant that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of the other current projects and the effects of probable future projects)?

No impact. The impacts of the proposed project are individually limited and not cumulatively considerable. All environmental impacts that could occur as a result of the proposed project would be reduced to a less than significant level through implementation of the mitigation measures recommended in this Initial Study and, when viewed in conjunction with other closely related past, present or reasonably foreseeable future projects, there would be no impact.

c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

No impact. As described in this Initial Study, the implementation of the proposed project could result in temporary air quality impacts during the construction period. Implementation of the mitigation measure (AQ-1) recommended in this Initial Study would ensure that the proposed project would not result in environmental effects that would cause substantial adverse effects on human beings.

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Appendix A: GHG Consistency Determination and GHG Inventory

Print Form

DWR GHG Emissions Reduction Plan Consistency Determination Form

For Projects Using Only DWR Staff and Equipment

This form is to be used by DWR project managers to document a DWR CEQA project's consistency with the DWR Greenhouse Gas Emissions Reduction Plan. This form is to be used only when DWR is the Lead Agency and when only DWR staff and equipment are used to implement the project.

Additional Guidance on filling out this form can be found at: dwrclimatecange.water.ca.gov/guidance_resources.cfm

The DWR Greenhouse Gas Emissions Reduction Plan can be accessed at: http://www.water.ca.gov/climatechange/CAP.cfm

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Project Name:	Bethany Dams Improvement Project
Environmental Document type:	CEQA Initial Study (IS)/Mitigated Negative Declaration (MND)
Manager's Name:	Gerald Snow
Manager's email:	Gerald.Snow@water.ca.gov
Division:	Operations and Maintenance
Office, Branch, or Field Division	SWP Operations Support Office, Regulatory Compliance Sec

Short Project Description:

Recent inspections of the dams and structures at Bethany Reservoir have identified several problems that require remediation, prompting re-initiation of routine maintenance in and around the dams. The following activities are proposed for inclusion in this maintenance project: 1) A temporary seepage monitoring weir was installed after the discovery of a oil near the Bethany Forebay Dam in 2011. The sand bag weir has become degraded, and DWR proposes to build a permanent seepage monitoring weir in its place. 2) A palm tree has grown near the Bethany Reservoir Interim Plant's outlet structure, obstructing the cement structure. DWR proposes to remove the palm tree in order to better maintain the cement structure. and 3) Wetland vegetation growth and sediment accumulation at the toe drain outfall of Dams 1, 2, and 3 has caused water to pond at the toe of the dams and has obstructed personnel from accessing seepage monitoring stations. DWR proposes to extend the outfall pipes away from the dams and remove vegetation from the drainage ditches in order to maintain regular seepage monitoring measurements and allow water to drain away from the dams. See attached for full project description.

Project GHG Emissions Summary

☒ All emissions from the project will occur as ongoing operational, maintenance, or business activity emissions and therefore have already been accounted for and analyzed in the GGERP. (This box must be checked if you are using this form. If you cannot check this box you must use the form at this link)

Project GHG Reduction Plan Checklist

☐ All Project Level GHG Emissions Reduction Measures have been incorporated into the design or implementation plan for the project. (Project Level GHG Emissions Reduction Measures)

Or

☒ All feasible Project Level GHG Emissions Reduction Measures have been incorporated into the design or implementation plan for the project and and Measures not incorporated have been listed and determined not be apply to the proposed project (include as an attachment)

☒ Project does not conflict with any of the Specific Action GHG Emissions Reduction Measures (Specific Action GHG Emissions Reduction Measures)

Would implementation of the project result in additional energy demands on the SWP system of 15 GWh/yr or greater?

○ Yes ◉ No

If you answered Yes, attach a Renewable Power Procurement Plan update approval letter from the DWR SWP Power and Risk Office.

Is there substantial evidence that the effects of the proposed project may be cumulatively considerable notwithstanding the proposed project's compliance with the requirements of the DWR GHG Reduction Plan?

○ Yes ◉ No

If you answered Yes, the project is not eligible for streamlined analysis of GHG emissions using the DWR GHG Emissions Reduction Plan. (See CEQA Guidelines, section 15183.5, subdivision (b)(2).)

Based on the information provided above and information provided in associated environmental documentation completed pursuant to the above referenced project, the DWR CEQA Climate Change Committee has determined that the proposed project is consistent with the DWR Greenhouse Gas Reduction Plan and the greenhouse gasses emitted by the project are covered by the plan's analysis.

Project Manager Signature: Date: 12/23/13

C4 Approval Signature: Date: 1/6/14

Attachments:

☒ List and Explanation of excluded Project Level GHG Emissions Reduction Measures

☐ Plan to update Renewable Energy Procurement Plan from DWR SWP Power and Risk Office

BMPs Not Included in Bethany Dams Improvement Project

The following Pre-Construction and Final Design and Construction BMPs are not included in the Bethany Dams Maintenance Project for the following reasons:

- BMP 3. Ensure that all feasible avenues have been explored for providing an electrical service drop to the construction site for temporary construction power. When generators must be used, use alternative fuels, such as propane or solar, to power generators to the maximum extent feasible.

BMP 3 is not applicable because temporary construction power will not be needed for this project.

- BMP 4. Evaluate the feasibility and efficacy of producing concrete on-site and specify that batch plants be set up on-site or as close to the site as possible.

BMP 4 is not applicable because large amounts of concrete are not needed for the proposed project.

- BMP 11. Reduce electricity use in temporary construction offices by using high efficiency lighting and requiring that heating and cooling units be Energy Star compliant. Require that all contractors develop and implement procedures for turning off computers, lights, air conditioners, heaters, and other equipment each day at close of business.

BMP 11 is not applicable because this project will not need a temporary construction office.

- BMP 12. For deliveries to project sites where the haul distance exceeds 100 miles and a heavy duty class 7 or class 8 semi-truck or 53-foot or longer box type trailer is used for hauling, a SmartWay certified truck will be used to the maximum extent feasible.

BMP 12 is not applicable because material transportation for this project will not exceed 100 miles.

- BMP 13. Minimize the amount of cement in concrete by specifying higher levels of cementitious material alternatives, larger aggregate, longer final set times, or lower maximum strength where appropriate.

BMP 13 is not applicable because only a minimal amount of concrete (1 yard) will be used in the project.