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# Low Effect Habitat Conservation Plan for the Alameda Whipsnake

DRAFT

Dos Osos Reservoir Replacement Project

Orinda, Contra Costa County, California

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## LIST OF ACRONYMS AND ABBREVIATIONS

Applicant	East Bay Municipal Utility District
CDFW	California Department of Fish and Wildlife
CESA	California Endangered Species Act
CEQA	California Environmental Quality Act
CNPS	California Native Plant Society
CNDDDB	California Natural Diversity Database
EBMUD	East Bay Municipal Utility District
ESA	Federal Endangered Species Act
GIS	Geographic Information System
HCP	Habitat Conservation Plan
ITP	Incidental Take Permit
NEPA	National Environmental Policy Act
PCE	Primary Constituent Elements
USFWS	U.S. Fish and Wildlife Service
WRA	WRA, Inc.

## DEFINITIONS

Permit Area	Area covered by the Incidental Take Permit. Synonymous with “Plan Area.”
Plan Area	The area included in this Low-Effect Habitat Conservation Plan where direct or indirect effects to endangered species or their habitat may occur.
Project	The Dos Osos Reservoir Replacement Project. This includes demolition of the existing reservoir and construction of two new reservoirs, a 12-inch inlet-outlet pipeline, and an approximately 800-foot-long access road.
Project site	Synonymous with “Plan Area.” Includes all areas of potential direct and indirect effects to listed species resulting from Project construction.
Take	Defined in section 3 of the Endangered Species Act as “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.”

## 1.0 INTRODUCTION

### 1.1 Overview and Background

East Bay Municipal Utility District (EBMUD) owns and operates the Dos Osos Reservoir, located at 8 Los Norrabos in the City of Orinda, Contra Costa County, California (Figure 1) which consists of a welded steel tank, called a reservoir. The Dos Osos Reservoir was constructed in 1955 to supply water to the Dos Osos Pressure Zone (Figure 2), generally within the city of Orinda and within EBMUD's service area (Figure 3). The existing reservoir has an operating and holding capacity of approximately 240,000 gallons, and includes underground distribution pipeline and valve mechanisms. The Dos Osos Pressure Zone provides water service to customers between 1,050 feet and 1,250 feet in elevation located in the Orinda hills, above the Caldecott Tunnel (Figure 2). The Dos Osos Pressure Zone consists of single-family residential homes on hilly terrain and vegetation that is moderate to heavy.

The existing reservoir interior and exterior are corroding and require recoating. In addition, the existing wood roof is deteriorating and requires full replacement. A photograph of the existing reservoir is provided in Appendix B. An EBMUD analysis (EBMUD 1999) determined that the Dos Osos Reservoir is located too low in elevation, resulting in low-pressure areas, and should be replaced at a higher elevation to maintain sufficient pressure for routine and emergency water delivery service.

The Dos Osos Reservoir Replacement Project (Project) includes demolishing the existing reservoir and replacing it with two new 120,000-gallon steel-bolted reservoirs on nearby EBMUD-owned watershed property, which is approximately 70 feet higher in elevation and 300 feet southwest of the existing reservoir site. A new, 12-inch inlet-outlet pipeline will connect the existing water distribution system to the new dual reservoirs, and will be accessed with an approximately 800-foot-long road that will be constructed from Los Norrabos Drive to the new dual reservoirs. The existing Dos Osos Reservoir, including the valve pit and foundation, will be demolished. Figure 4 shows where the existing and new reservoirs covered by the Habitat Conservation Plan (HCP) will be located (Plan Area), and Appendix B includes representative photographs of the Plan Area.

EBMUD's existing Dos Osos Pumping Plant, located at 263 El Toyonal, Orinda, will also be rehabilitated at the same capacity and within its existing footprint to accommodate the new reservoir elevation. However, it is not included as part of this proposed action, permit application, or Plan Area because it has no effect to state or federally protected species, and will provide no additional capacity to the service area. The location of the Dos Osos Pumping Plant in relation to the existing reservoir is shown on Figure 2.

After a thorough evaluation of the Plan Area and recent biological records of the surrounding area by qualified biologists from EBMUD and WRA, Inc. (WRA), the biological consultant for the Applicant, we have determined that take of the Alameda whipsnake (*Masticophis lateralis euryxanthus*), as defined by both the State and Federal Endangered Species Acts (ESA), may occur. In addition, the site of the new reservoir structures is located on designated critical habitat for the Alameda whipsnake (USFWS 2006).

Therefore, this Low Effect HCP is being prepared in support of a Section 10(a)(1)(B) ESA permit and a Consistency Determination by the State of California Department of Fish and Wildlife (CDFW) pursuant to Fish and Game Code 2080.1.

## 1.2 Purpose and Need

The Project objectives include:

- Rehabilitate and replace critical aging water distribution facilities;
- Improve level of service in the Dos Osos Pressure Zone by raising the elevation of the proposed new dual Dos Osos Reservoirs to minimize low-pressure areas; and
- Increase operational flexibility in the pressure zone by replacing the existing Dos Osos Reservoir with new dual Dos Osos Reservoirs.

The Dos Osos Reservoir was evaluated and recommended for rehabilitation in the EBMUD Infrastructure Rehabilitation Plan for Distribution Reservoirs 2012 Update to the Distribution System Master Plan for Reservoirs (2008), which documented existing conditions of EBMUD reservoirs and prioritized facility rehabilitations and replacements. The reservoir interior and exterior require recoating to address corrosion issues, and the existing wood roof is deteriorating and requires full replacement. An EBMUD analysis (EBMUD 1999) determined that the Dos Osos Reservoir is located too low in elevation, resulting in low-pressure areas, and should be replaced at a higher elevation to maintain sufficient pressure for routine and emergency water delivery service.

Operational flexibility is derived from the construction of two tanks. One tank can be removed from service during low-demand periods while the other remains in service. For example, during the winter season when there is less demand for potable water, only one tank could be used, which results in less water being stored overall as water is circulated through the tank and water distribution system. Reducing water storage to meet demand improves water quality by decreasing water age (decreasing the time water is in the tank). Similarly, one tank can be removed from service for maintenance (cleaning and/or repairs) while the other tank remains in service. During periods of high demand, both tanks can be used to meet customer demand.

Replacement of the existing Dos Osos Reservoir with new, dual Dos Osos Reservoirs at a higher elevation will rehabilitate aging infrastructure, improve level of service and increase operational flexibility.

## 1.3 Plan Area / Permit Area

The location of the proposed reservoirs is located approximately 300 feet directly southwest of the existing Dos Osos Reservoir on a 0.40-acre site, roughly 70 feet higher in elevation. The existing reservoir site is surrounded by low-density residential lots to the north and east, horse pasture and corral to the west, and undeveloped EBMUD watershed lands to the south. The Plan Area and vicinity are generally situated on steep slopes.

The new dual Dos Osos Reservoirs will be located at the northern perimeter of and on EBMUD watershed lands, about 100 feet south of the intersection of two private roads, Los Norrabos and Tres Mesas (Figures 1 and 4). An EBMUD fire access road also exists on the EBMUD watershed lands at this location. The new dual reservoir site will be graded into the hillslopes that face northeast, approximately 300 feet from the existing reservoir (Figure 4).

The surrounding area, known as the Dos Osos Pressure Zone, is located in a hilly region of Orinda, north of the Caldecott Tunnel (Figure 1). This area is the highest elevation of the El Toyonal neighborhood. It is populated with "semi-rural," low density, single-family housing, and bounded to the south by EBMUD open space watershed lands known as Siesta Valley. The



EBMUD watershed lands parcel, where the Project is located, is approximately 980 acres of open space. This parcel is roughly bounded by Camino Pablo to the east, Grizzly Peak Boulevard and Fish Ranch Road to the west, El Toyonal neighborhood to the north, and Highway 24 to the south.

The proposed Plan and Permit Area are all EBMUD-owned or -controlled lands and are shown in Figure 4. The Plan and Permit Area includes:

- 1) The proposed site of the new dual reservoir and berms (0.16 acre);
- 2) The potential geotechnical slope stabilization areas (0.6 acre); and
- 3) The 800-foot-long access road that will be constructed/reconstructed from Los Norrabos to the new dual reservoir site. Two pipelines will be constructed in the new access road: a new 12-inch reservoir inlet-outlet pipeline to connect the new dual reservoirs to the existing water distribution system in Los Norrabos, and a new 8-inch reservoir overflow drain pipeline to connect the new dual reservoirs to the existing drain pipeline located at the existing reservoir site (0.22 acre).

And temporary impact areas, including:

- 4) The existing single reservoir which includes the paved and graveled areas immediately surrounding the reservoir (0.40 acre). The existing reservoir parcel is not within critical habitat.
- 5) The staging and laydown areas (1.55 acres)
- 7) The construction staging area north of the new dual reservoirs site (0.05 acre)

The total project construction footprint is 2.98 acres which encompasses both the 0.98-acre permanent impact and 2.00-acre temporary impact areas. Of the 2.98-acre construction footprint, only 2.58 acres is within Alameda whipsnake critical habitat or potential habitat. Figure 4 shows the construction and staging area with the impact/plan area highlighted and Table 1 shows the area quantities.

#### **1.4 Applicant and Permit Duration**

EBMUD, the Applicant, is a publicly-owned utility district that provides water service to 20 incorporated cities and 15 unincorporated areas in Alameda County and Contra Costa County. The water distribution system is comprised of six water treatment plants, over 4,200 miles of potable (treated water) distribution and transmission pipes, 175 potable water reservoirs, 130 pumping plants, and numerous accessory structures. The water distribution system provides water service to EBMUD's approximately 1.4 million customers.

EBMUD, as legal owner of the existing reservoir and property, is the Applicant, and is requesting an Incidental Take Permit (ITP) pursuant to section 10(a)(1)(B) of the ESA of 1973, to authorize incidental take of the Alameda whipsnake. EBMUD is seeking a permit for a period of 15 years, commencing on the date of approval and permit issuance. A fifteen-year permit period is requested to capture the time necessary to complete planning, financing and construction of the Project, carry out proposed measures to conserve the Alameda whipsnake, as well as incorporate flexibility into the construction schedule, in the event unforeseen logistical circumstances arise. Incidental take coverage is not being sought for operation and maintenance of the Project, as these activities are covered, analyzed, and mitigated for under the existing EBMUD Low Effect East Bay HCP, issued by the U.S. Fish and Wildlife Service (USFWS) in 2008 which includes

road operations in watershed lands (EBMUD Low Effect East Bay HCP, 2008; Section 3.2.9.1 Vehicular access on watershed roads and trails). In addition, the new access road would be gated to limit access to EBMUD employees for the protection of Alameda whipsnake, and it is anticipated the new access road would be used approximately six times a month for routine maintenance and operational trips to the dual reservoirs.

### 1.5 Alternatives to the Taking

The Applicant has considered alternatives to reduce impacts to the Alameda whipsnake, including:

**No Action** – The no action alternative is not feasible, based on the purpose and need of the Project. The existing reservoir is at the end of its useful life, due to deterioration of the structural materials. The metal on the existing reservoir is corroding, the roof is deteriorating and the entire structure will eventually be unable to maintain an adequate water supply and serve its intended function. EBMUD must replace this critical aging water distribution facility and improve the level of service in the pressure zones by raising the elevation of the proposed new dual Dos Osos Reservoirs. In addition, the Project is necessary to increase operational flexibility by replacing the existing single reservoir with new dual Dos Osos Reservoirs.

**Reconstruction and/or repair of the existing facility** – Reconstruction on-site is not feasible due to the need to elevate the new reservoirs 70 feet higher to improve service performance (see “No Action” Alternative).

**Construction of a new reservoir system in a location without or with fewer impacts to the Alameda whipsnake** – The Project must be constructed within a narrow scope of design and engineering criteria—the new reservoirs must be sited at a specific elevation to serve specific customers within a limited geographic area within a limited elevation range. Factors considered included: minimizing new pipeline quantities (distance to connect to existing water distribution pipelines), slope, location in the pressure zone, accessibility, and land ownership. EBMUD engineers and resource staff determined the proposed site presents the least environmentally damaging practicable alternative, while meeting the criteria driving the need to construct a new reservoir system. The evaluation process includes, but is not limited to, consideration of the Alameda whipsnake habitat requirements. EBMUD staff selected the proposed site based on the relative lack of physical and biological features most suitable to the Alameda whipsnake, including rock outcroppings, chaparral, and prey population.

### 1.6 Coordination with Federal and State Agencies

The Alameda whipsnake is listed as a threatened species, pursuant to the Federal and State ESAs. On March 29, 2018, EBMUD facilitated a meeting at the Plan Area that included Ryan Olah from the USFWS Sacramento Fish and Wildlife Office and Jeanette Griffin from the CDFW Region 3 Bay-Delta regional office. The purpose of the on-site meeting was to provide an overview of the Project and address agency questions and concerns. In addition, EBMUD and WRA staff provided material information to CDFW and USFWS staff to facilitate a coordinated permitting strategy, including issuance of a Consistency Determination from CDFW (Fish and Game Code §2080.1).

## 1.7 Summary of Relevant Laws and/or Regulations

### 1.7.1 *Federal Endangered Species Act*

USFWS responsibilities include administering the ESA of 1973 (USFWS 1973). Section 9 of the ESA prohibits take of any federally listed endangered or threatened species. Take is defined in Section 3(19) of the ESA as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” USFWS regulations in 50 Code of Federal Regulations (CFR) 17.3 further define harm to include significant habitat modification or degradation that actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering. Harassment is defined as an intentional or negligent action that creates the likelihood of injury to wildlife by annoying a species to such an extent that its normal behavioral patterns (e.g., breeding, feeding, or sheltering) are significantly disrupted. The ESA provides for civil and criminal penalties for the unlawful taking of listed species. Exemptions to the prohibitions against take may be obtained by coordinating with the USFWS in two ways. If a project is to be funded, authorized, or carried out by a federal agency and may affect a listed species, the federal agency must consult with the USFWS pursuant to section 7(a)(2) of the ESA (USFWS 1973).

To comply with federal law, private individuals, and state, local or other entities who propose an action that is likely to result in take of federally listed species, and for which there is no federal nexus, may achieve compliance with the ESA by applying for an ITP pursuant to section 10(a)(1)(B) of the ESA. Such permits are issued by the USFWS when take is not the intention of, and is incidental to, otherwise legal activities. An application for an ITP must be accompanied by a HCP. The regulatory standard under section 10(a)(1)(B) of the ESA requires that effects of authorized incidental take be minimized and mitigated to the maximum extent practicable. Under section 10(a)(1)(B) of the ESA, a proposed action must not appreciably reduce the likelihood of survival and recovery of the species in the wild. Adequate funding of identified actions to minimize and mitigate impacts must also be ensured (USFWS 1973). Section 7(a)(2) of the ESA requires that federal agencies ensure that their actions, including permit issuance, do not jeopardize the continued existence of listed species or destroy or adversely modify listed species' critical habitat. Pursuant to 50 CFR 402.2, “Jeopardize the continued existence of...” means to engage in an action that would reasonably be expected, directly or indirectly, to appreciably reduce the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species. Issuance of an ITP by the USFWS, pursuant to section 10(a)(1)(B) of the ESA, constitutes a federal action that is subject to requirements of section 7(a)(2). As such, as a federal agency issuing a discretionary permit, the USFWS must prepare an internal consultation to address the effects of their action (USFWS 1973).

### 1.7.2 *Section 10(a)(1)(B) Incidental Take Permit Process*

The process for obtaining an ITP has three primary phases: (1) develop an HCP; (2) process a permit; and (3) post-issuance compliance. During development of an HCP, the project applicant prepares a plan that integrates the proposed project or activity with protection of listed species. Every HCP submitted in support of an ITP application must include this information: (1) description of impacts likely to result from the proposed taking of the species for which permit coverage is requested; (2) description of measures that will be implemented to monitor, minimize, and mitigate impacts, including funding that will be made available to undertake such measures and procedures to deal with unforeseen circumstances; (3) description of alternatives to the proposed

action that would not result in take; and (4) any additional measures the USFWS may require as necessary or appropriate.

The USFWS established a special category for HCPs with relatively minor or negligible impacts or “low-effect” HCP” category, which is defined as follows:

- HCPs involving minor or negligible effects on federally listed, proposed, or candidate species and their habitats covered under the HCP; and,
- HCPs involving minor or negligible effects on other environmental values or resources.

“Low-effect” incidental take permits are those permits that, despite their authorization of some small level of incidental take, individually and cumulatively have a minor or negligible effect on the species covered in the HCP. Low-effect HCPs may also apply to habitat-based HCPs if the permitted activities have minor or negligible effects to the species associated with the habitat-types covered in the HCP. Factors relevant to the determination that an activity is a low-effect activity include, but are not limited to, the effect of the activity on the distribution or the numbers of the species.

During the post-issuance phase, the permittee(s) and other responsible entities implement the low-effect HCP. The USFWS monitors permit compliance, as well as the long-term progress and successful implementation of the low-effect HCP. The low-effect HCP development phase concludes and the permit processing phase begins when a complete application package is submitted to the USFWS. A complete application package for a low-effect HCP includes the permit application, a 100 dollar fee, and the HCP. The USFWS then publishes a Notice of Availability for the application in the Federal Register to allow for public comment. As part of the determination regarding issuance of an ITP, the USFWS prepares an internal Biological Opinion pursuant to section 7(a)(2) and prepares Findings to ensure the HCP meets permit issuance criteria. Compliance with the National Environmental Policy Act (NEPA) is ensured by preparing an Environmental Action Statement, Environmental Assessment, or Environmental Impact Statement. These documents are then published for a 30, 60, or 90-day public comment period, respectively. An implementing agreement accompanies the HCP, except in cases where the HCP is categorically excluded from NEPA and eligible for processing as a low-effect HCP. The ITP is issued upon the USFWS’ determination that all requirements for permit issuance have been met. These criteria require that: (1) the taking will be incidental; (2) the impacts of incidental take will be minimized and mitigated to the maximum extent practicable; (3) the taking will not appreciably reduce the likelihood of survival and recovery of the species in the wild; (4) the Applicant will provide additional measures that the USFWS requires as being necessary or appropriate; and (5) the USFWS has received assurances, as may be required, that the low-effect HCP will be implemented. During the post-issuance phase, the permittee(s) and any other responsible entities implement the low-effect HCP. The USFWS will monitor compliance with the low-effect HCP, as well as its long-term progress and success.

The Applicant is pursuing an ITP pursuant to section 10(a)(1)(B) of the ESA through submittal of this Low-Effect HCP. The Dos Osos Reservoir Replacement Project qualifies for a low-effect HCP because:

- The effects of the HCP are minor or negligible on the Alameda whipsnake and its habitats
- The effects of the HCP are minor or negligible on other environmental values or resources (e.g. air quality, geology and soils, water quality and quantity, socio-economic, cultural resources, recreation, visual resources, etc.) prior to implementation of the mitigation plan

- The impacts of this HCP, considered together with the impacts of other past, present and reasonably foreseeable similarly projects will not result, over time, in cumulative effects to environmental values or resources which would be considered significant.

### *1.7.3 National Environmental Policy Act*

The purpose of NEPA is two-fold: to ensure that federal agencies examine environmental impacts of their actions (e.g., in this case, whether or not to issue an ITP) and to facilitate public participation. This federal act serves as an analytical tool to examine direct, indirect, and cumulative impacts of proposed project alternatives to inform the USFWS on whether or not to issue an ITP pursuant to section 10(a)(1)(B) of the ESA. Compliance with NEPA is required for each HCP, as part of the ITP application process. As stated above, the Dos Osos Reservoir Replacement Project is categorically exempt from NEPA and qualifies for a low-effect HCP because:

- The effects of the HCP are minor or negligible on the Alameda whipsnake and its habitats
- The effects of the HCP are minor or negligible on other environmental values or resources (e.g. air quality, geology and soils, water quality and quantity, socio-economic, cultural resources, recreation, visual resources, etc.) prior to implementation of the mitigation plan
- The impacts of this HCP, considered together with the impacts of other past, present and reasonably foreseeable similarly projects will not result, over time, in cumulative effects to environmental values or resources which would be considered significant.

### *1.7.4 National Historic Preservation Act*

All federal agencies are required to examine the potential for a considered action to result in impacts to cultural resources. This requires consultation with the State Historic Preservation Office and any potentially affected American Indian tribe(s). All ITP applicants are requested to submit a Request for Cultural Resources Compliance form to the USFWS, along with the draft HCP. Depending on the nature of the information provided, applicant(s) may be required to conduct cultural resource surveys and provide mitigation for any identified significant impacts to cultural resources.

The Plan Area is not listed on the Federal Register of Historic Places or the California Register of Historical Resources. The existing Dos Osos Reservoir is located on developed land that has been subject to prior excavation and disturbance. All Project work at the existing Dos Osos Reservoir site will occur in areas that have been previously disturbed and no archaeological, paleontological resources or human remains were encountered previously. EBMUD maintains an Archaeological Resources Geographic Information System (GIS) database that is updated annually with the results of a records search of the Northwest Information Center of the California Historical Resources Information System. A GIS survey of the existing Dos Osos Reservoir site and the new dual Dos Osos Reservoirs site found no recorded occurrences of archaeological resources within the immediate vicinity of a half mile. In the event that there is an inadvertent discovery of a historic, paleontological, or cultural artifact, the Applicant has included standard practices and procedures, applicable to all EBMUD projects, which are fully compliant with statutory requirements. These standard practices are described in detail in the California Environmental Quality Act (CEQA) Mitigated Negative Declaration (Appendix C) for the Project.

### 1.7.5 Relevant State Laws and Regulations

CEQA Guidelines (Section 15065(a)) indicate that impacts to state and federally listed rare, threatened, or endangered plants or animals are significant. Impacts to species that meet certain criteria, but are not officially listed, may also be considered significant. This includes ranks 1A, 1B, and 2 of the California Native Plant Society (CNPS) Inventory of Rare and Endangered Vascular Plants of California, which qualify for listing by CDFW. CEQA Guidelines Section 15380(b) states that a species not listed on the federal or state list of protected species may be considered rare or endangered if the species can be shown to meet certain specified criteria, as in the case of ESA and California Endangered Species Act (CESA) “candidate species”. CDFW Species of Special Concern, USFWS Birds of Conservation Concern and sensitive species included in USFWS Recovery Plans may also receive consideration under CEQA. Agencies must specifically address potential impacts to sensitive species and provide mitigation measures if the impact is significant. The Applicant has fully complied with CEQA, having completed an Initial Study and will implement mitigation measures to reduce Project impacts to “Less than Significant” levels. A Mitigated Negative Declaration was finalized on October 1, 2017 (EBMUD 2017) and is attached as Appendix C.

CESA states that all native species of fishes, amphibians, reptiles, birds, mammals, invertebrates, and plants, as well as their habitats, threatened with extinction and those experiencing a significant decline, which, if not halted, would lead to a threatened or endangered designation, will be protected or preserved. Private developers whose projects do not involve a state lead agency under CEQA may not take a listed species without formally consulting with the CDFW and agreeing to measures that will limit impacts to the listed species. The CDFW also encourages informal consultation on any project that may affect a candidate species. Incidental take may be permitted for CESA listed species under Section 2081 of the Fish and Game Code. Appropriate mitigation to offset impacts to listed species is required to obtain CESA ITPs. Section 2080.1 allows an applicant who has obtained a federal incidental take statement pursuant to an ESA Section 7 consultation, or a federal Section 10(a)(1)(B) ITP, to request a consistency determination from CDFW that authorizes take under the CESA. The Applicant is pursuing a consistency determination from the CDFW on a parallel track with the Federal ESA permitting process.

## 2.0 PROJECT DESCRIPTION AND COVERED ACTIVITIES

### 2.1 Project Description

#### 2.1.1 New Dos Osos Dual Reservoirs Construction

To address the reservoir deficiencies described above, the existing reservoir will be replaced with two new 120,000-gallon steel-bolted reservoirs to increase storage turnover, decrease water age, and increase operational flexibility. The dual reservoirs will be constructed approximately 70 feet higher in elevation, on adjacent EBMUD owned watershed lands. The Plan Area is located near the intersection of two private roads, Los Norrabos and Tres Mesas, and an EBMUD fire road to the Siesta Valley watershed lands. The proposed dual reservoirs will be located near the northern boundary of the EBMUD watershed lands parcel, approximately 300 feet southwest of the existing Dos Osos Reservoir (Figure 4). Figure 4 shows a conceptual plan depicting major Project components at the new dual reservoirs site.

Each new dual steel-bolted reservoir will be approximately 21 feet high, with a diameter of about 33 feet, and bottom and overflow elevations of approximately 1,399 feet and 1,420 feet, respectively. The dual reservoirs will be spaced approximately 15 feet apart for maintenance access. Each reservoir will be equipped with an approximately 12-foot by 12-foot valve pit, work station, cathodic protection panel (in valve pit), remote telemetry unit panel with associated ten-foot antennas on each roof, stairway and a 42-inch-high fall protection. Each proposed reservoir will have a remote actuated isolation valve, which will allow for dual tank operation by isolating reservoirs to allow one reservoir to be in use while the second reservoir is offline, in order to improve reservoir turnover, while also maintaining fire flow storage. The reservoirs will have aluminum dome roofs.

Siting of the proposed dual reservoirs requires excavation of approximately 2,000 cubic yards of embankment. The footprint of the dual reservoir site is approximately 0.16 acre. An approximately 210-foot-long retaining wall will be constructed to retain the hillside behind the dual reservoirs. The retaining wall will have a maximum height of approximately 18 feet. An eight-foot-high, black-vinyl-coated security chain link fence and gate will enclose the dual reservoir site.

In addition to the actual footprint of the reservoirs, it is possible that the geological characteristics of the slope to the south and northwest of the reservoir footprint (Figure 4) will require additional slope stabilization. Preliminary and limited geotechnical analysis has been conducted without using ground disturbing activities. The preliminary results indicate the proposed retaining wall is sufficient to protect against slope failure. However, a more thorough geotechnical investigation will be conducted during the design phase prior to construction and a determination will be made as to whether additional geotechnical stabilization is necessary. Geotechnical slope stabilization techniques may include: corrective grading, underground slope reinforcement, and/or drainage facilities, if necessary. The maximum permanent impact footprint necessary for potential slope stabilization activities is included in Figure 4. These slope stabilization areas are shown as permanent impacts within Alameda whipsnake critical habitat. Depending upon the geotechnical slope stabilization technique that is required (if any), the slope stabilization areas may be smaller than those shown in Figure 4, and/or only have temporary impact. If no geotechnical slope techniques are required, the areas identified in Figure 4 will not be impacted.

The new dual reservoirs will be sited with an orientation (southwest to northeast) that minimizes the reservoir surface area presented to long-distance views, to the extent practical. The purpose of this is for only one tank to be visible from afar, due to dual tank alignment. The new dual reservoirs' exteriors and roofs will be painted green to blend into the hillside. The proposed excavation will situate the new dual reservoirs into the hillside, resulting in the new dual reservoirs being recessed in, and not protruding from, the hillside. The retaining wall surface will also be designed to minimize contrast with the surrounding hillside.

Two earthen berms will be constructed to screen the dual reservoirs from the northeastern and northwestern vantage points. The two proposed earthen berms will be a) north of the proposed dual reservoirs site, parallel to the parcel perimeter, to screen views from properties to the north; and b) northeast of the proposed dual reservoirs site, between the new dual reservoirs and the existing fire access road, parallel to the fire access road, to screen long-distance views from residences. The berms and the area upslope of the retaining wall will be planted with 8 to 12 native trees for screening.

### *2.1.2 Access Road Construction/Reconstruction*

To provide year-round access to the proposed reservoir location, an approximately 800-foot long and 12-foot wide, asphalt concrete access road (with a maximum slope of about 15 percent) will be constructed, starting at the private Los Norrabos roadway, continuing uphill from the existing Dos Osos Reservoir entrance. The road will be partially within the existing access road footprint. At approximately 100 feet upslope of the existing reservoir entrance, the new access road will turn south just past the Dos Osos Reservoir parcel line to enter EBMUD watershed lands. Once inside watershed lands, the access road will continue southerly upslope, before switching back to meet the existing EBMUD fire road, where it will follow the fire road for approximately 260 feet, before reaching the proposed dual reservoirs site. The access road will be constructed to allow for stormwater runoff to drain to surrounding vegetated hillslopes and infiltrate into native soils. Approximately five trees will need to be removed for the construction of the new access road. Following completion of construction, a gate will be installed at the entrance of the access road to restrict access to EBMUD employees.

### *2.1.3 Pipeline Construction*

An estimated 800 feet of 12-inch pipeline will connect the dual reservoirs to the existing pipeline in Los Norrabos, and will be located wholly within the new access road alignment. A new eight-inch overflow pipeline will also run from the dual reservoirs along the access road alignment for approximately 700 feet, prior to turning northeast for 50 feet to connect to the existing Dos Osos Reservoir eight-inch overflow pipeline. The proposed overflow pipeline will connect to the existing Dos Osos Reservoir overflow pipeline at the existing reservoir site, approximately 250 feet above the existing outfall. The pipelines are underground and within the new and reconstructed access roads. The construction footprint for placement/replacement of the pipelines will occur entirely within the new and reconstructed road footprint.

### *2.1.4 Existing Dos Osos Reservoir Demolition*

The existing Dos Osos Reservoir, including the valve pit and foundation, will be demolished upon completion of construction and successful testing of the new dual Dos Osos Reservoirs. All steel, roofing, stairs, concrete vaults, concrete foundations, electrical, and mechanical equipment will be removed from the Project site.

### *2.1.5 Staging Areas*

During construction of the new reservoirs, equipment and materials will be staged within the existing reservoir site. As Project construction and grading for the new dual reservoirs progresses, staging may occur on watershed lands within the 2.98-acre Plan Area, but will remain within the Plan Area which includes temporary and permanent impacts. Staging may also occur on an adjacent parcel to the north, if granted permission, and this potential area is shown on Figure 4 and included in the Plan Area. All staging during demolition of the existing reservoir will occur within the existing reservoir parcel.

### *2.1.6 Schedule*

The proposed Action is anticipated to take 18-24 months to complete. Based on anticipated timeframe to finalize the Project design and receive all Project permits, construction is currently anticipated to begin in Spring 2023 and complete in Fall 2024. However, in case there are delays, the ITP is requested for a 15-year period.



## 2.2 Covered Activities

Covered activities for the Dos Osos Reservoir Replacement Project include:

- Construction of new Dos Osos dual reservoirs and ancillary facilities, and associated site work within the graded area.
- Construction of access road.
- Pruning or removal of approximately 600 square feet of vegetation, predominantly poison oak (*Toxicodendron diversilobum*) and coyote brush (*Baccharis pilularis*), and approximately five trees.
- Construction of two pipelines connecting new dual reservoirs to existing pipelines.
- Construction of two earthen berms to screen reservoirs.
- Installation of security fencing surrounding the new dual reservoirs.
- Potential slope stabilization work east and south of the new dual reservoirs.
- Demolition of the existing Dos Osos Reservoir.
- Revegetation and restoration of Project site and staging areas.

## 3.0 COVERED SPECIES AND CRITICAL HABITAT

### 3.1 Evaluation Process

The following resources were researched and analyzed to develop a list of special status plant and wildlife species with the potential to occur in the Plan Area:

- California Natural Diversity Database records (CNDDDB 2015 & 2018)
- Special Vascular Plants, Bryophytes, and Lichens List (CDFW 2015)
- Special Animals List (CDFW 2015)
- USFWS Official Species List (USFWS 2015 & 2018)
- CNPS Electronic Inventory records (CNPS 2015)
- CNPS list of Rare, Unusual and Significant Plants of Alameda and Contra Costa Counties (Lake 2010)
- EBMUD Managed Species Database (EBMUD FWD 2015)

#### 3.1.1 Plants

Special-status plant species known to occur within five miles of the Project were identified. A focused evaluation of 13 plant species known to occur within one mile of the Plan Area was conducted (EBMUD 2016; Appendix D, pp 12-13, 18-23). Three surveys for special status plant species were conducted by a qualified botanist in the Plan Area in 2015 and 2016 (EBMUD 2016; Appendix D, p 12). Surveys were coordinated with the bloom periods for potentially occurring rare plant species and were conducted on June 29, 2015; March 3, 2016; and May 27, 2016. Based on the results of the surveys, no Federal or State listed plants were detected or are anticipated to occur within the Plan Area.

#### 3.1.2 Wildlife

Reconnaissance level surveys for wildlife species were conducted in 2015 and 2016, and a focused habitat assessment for the Bridge's coast range shoulderband snail (*Helminthoglypta nickliniana bridgesi*) was completed in 2016 (EBMUD 2016; Appendix D, pp12-13, 23-32). No

Federal or State listed species were detected. Based on the evaluation and reconnaissance surveys, the only State or Federally listed species with potential to occur within the Plan Area is the Alameda whipsnake. This species is addressed accordingly in this HCP.

### **3.2 Alameda Whipsnake**

The Alameda whipsnake is a slender, fast-moving, semi-arboreal, diurnally active snake, with a slender neck, broad head, and large eyes. The characteristics of this snake are typical of snake species that predate on lizards. Adults reach a length of three to four feet. Their dorsal surface is sooty black, with a distinct yellow-orange stripe down each side. The anterior portion of their ventral surface is orange-rufous colored, the midsection is cream colored, and the tail pinkish (USFWS 2011).

#### *3.2.1 Status and Distribution*

The Alameda whipsnake is listed as a threatened species under both the California and Federal ESAs (62 FR 64306, 14 CCR 670.5).

The Alameda whipsnake's range is restricted to western and central Contra Costa and Alameda Counties, as well as limited portions of northern Santa Clara and western San Joaquin Counties (USFWS 2011). This range can be subdivided into five populations that correspond to relatively contiguous mosaics of chaparral and coastal scrub, grassland, oak woodland/savanna, and riparian vegetation types. These areas are fragmented by urban development, transportation corridors, and a lack of coastal scrub and chaparral vegetation within the Tri-Valley (USFWS 2011). The Project lies within the Northern East Bay Hills population.

#### *3.2.2 Habitat Characteristics and Use*

The Alameda whipsnake is commonly associated with patches of chaparral or northern coastal sage scrub and coastal sage communities, interspersed with other native vegetation types and rock lands (USFWS 2011). Chaparral and coastal scrub vegetation serve as the center of home ranges, and provide for concealment from predators, and foraging opportunities. However, verified observations have been made up to four miles from coastal scrub and chaparral habitat (USFWS 2011).

Grassland and riparian areas adjacent to scrub habitat provide important movement and connection corridors, and may be part of the Alameda whipsnake's home range (Swaim 1994). The Alameda whipsnake has been documented in grassland, savanna, and riparian habitats at distances greater than 500 feet from scrub or chaparral communities (Swaim 2000). Common core areas, or areas of concentrated use, for the Alameda whipsnake occur on east, south, southeast, and southwest facing slopes. However, recent information indicates that Alameda whipsnakes do utilize north facing slopes in more open stands of scrub habitat. Rock outcrops with deep crevices or abundant rodent burrows are important habitat components for overnight dens, refuges from predators and excessive heat, as well as foraging. The Alameda whipsnake has two seasonal peaks in activity, one during the spring mating season and one during late summer to early fall.

#### *3.2.3 Occurrence in the Plan Area*

The Plan Area is surrounded by and on a grassland hillside on a north-easterly aspect, within a mosaic of scrub and oak woodland. This general area has abundant small mammal burrows and rock outcrops nearby, and is considered suitable habitat for the Alameda whipsnake (EBMUD

2016, pp 25-26). There are local occurrences of the Alameda whipsnake listed within the CNDDDB (CNDDDB 2015 and 2018). EBMUD has documented 12 observations of Alameda whipsnake less than one mile from the Plan Area (EBMUD FWD 2015). Six of these snakes were captured in Siesta Valley as part of a study conducted by EBMUD in 2013 and 2014 (Price et al. 2014). The occurrence nearest the Plan Area was observed in 1990 and is located 0.4 miles from the Plan Area. The grassland where the new tanks will be constructed is located approximately 300 feet from scrub vegetation which is identified as core habitat for the species, per EBMUD's Low Effect East Bay HCP. There is a high potential for the Alameda whipsnake to occur within the Plan Area.

#### *3.2.4. Alameda Whipsnake Critical Habitat*

On October 2, 2006, the USFWS issued a final rule designating critical habitat for the Alameda whipsnake; the rule became effective on November 1, 2006 (USFWS 2006). In total, approximately 154,834 acres of critical habitat were designated for the taxon in Alameda, Contra Costa, Santa Clara, and San Joaquin Counties, California. The new proposed reservoir site falls within Critical Habitat Unit 6-Caldecott Tunnel (USFWS 2006). Unit 6 is 4,151 acres in size.

## **4.0 ENVIRONMENTAL SETTING AND BIOLOGICAL RESOURCES**

### **4.1 Environmental Setting**

The Project is located in a hilly region of the City of Orinda, on the east slope of Eureka Peak in the Berkeley Hills (Figure 1). Berkeley Hills are a range of the Pacific Coast Ranges that extend north from Castro Valley to San Pablo Bay. This area is populated with "semi-rural," low-density, single-family housing and bounded to the south by the open space watershed lands of EBMUD, known as Siesta Valley. The watershed lands parcel, approximately 980 acres of open space, is roughly bounded by Camino Pablo to the east, Grizzly Peak Boulevard and Fish Ranch Road to the west, the El Toyonal neighborhood to the north, and Highway 24 to the south. The watershed lands consist of open, hilly, grazed annual grassland. The existing Dos Osos Reservoir is located approximately 300 feet directly northeast of the proposed reservoirs site on a 0.38-acre parcel at 8 Los Norrabos, roughly 70 feet lower in elevation than the proposed location. The existing reservoir site and neighboring parcels are heavily canopied by native trees, including coastal live oaks and California bay trees. The existing site is located at the margin of coast live oak woodland and annual grassland of the watershed lands are present immediately south.

#### *4.1.1 Climate*

The Plan Area is characterized as having a Mediterranean climate, with cool, rainy winters and warm, dry summers. The Berkeley Hills affect the local climate due to their elevation and situation. The hills block the oceanic marine layer, which is most developed during the summer months, creating a "fog shadow" effect on the areas directly east. Areas to the east of the hills are consequently warmer than areas west of the hills. In winter, the reverse occurs, with the fog confined to areas east of the hills. The elevation of the hills also has an effect on rainfall, increasing the amount of precipitation in Orinda compared with surrounding areas east of the Hills. The average annual rainfall for Orinda is 24 inches. In the spring and fall, hot, dry, and gusty winds blow across the ridges of the Berkeley Hills, posing a significant fire danger. Average temperatures in Orinda range from 55°F in winter to 71°F in summer. Orinda is located in a hilly area and microclimates create temperature variations between the short distances.

#### *4.1.2 Soils/Geology*

The Berkeley Hills are overlain by Tertiary sedimentary and volcanic rocks. No unique soil types (e.g., limestone, serpentine, gabbro) were identified in the Web Soil Survey near the Plan Area (NRCS 2015). Soils include Los Gatos and Gilroy clay loam. Los Gatos soils are found on steep to very steep areas at elevations of 200 to 4,000 feet. These soils are formed in residuum from sandstone, shale, and metasedimentary rock. The Los Gatos series is well drained and have a high run-off rate, with moderate permeability. The surface and subsoils are moderately acidic. The Gilroy series consists of moderately deep, well drained soils that formed in material weathered from basic igneous and metamorphic rocks. The surface and subsoil are mainly moderately acid to neutral throughout, tend to become less acidic with depth, and are moderately alkaline in some pedons just above the bedrock. The Gilroy series is well drained, with medium to rapid runoff, moderately slow permeability, and a moderate to moderate-high erosion rating, depending on the steepness of slopes.

#### *4.1.3 Hydrology/Streams, Rivers, and Drainages*

No wetlands, waters or riparian areas under the jurisdiction of the U.S. Army Corps of Engineers, Regional Water Quality Control Board, or CDFW occur within the Plan Area. No obligate hydrophytes were identified within the Plan Area. The nearest waterway is an ephemeral unnamed drainage in the headwaters of San Pablo Creek. The drainage is located 200 feet to the southeast of the Plan Area. The tributary connects to an undergrounded segment of San Pablo Creek, approximately one mile downstream at the Orinda Village shopping center. The National Wetlands Inventory identified three freshwater emergent wetlands within a one mile radius of the Project (USFWS 2015; NWI 2015), but none within the Plan Area. A landslide which occurred in the winter of 2016 created a shallow pond approximately 0.65 miles to the south of the Plan Area. This pond, likely fed by a spring and surface runoff, is now used by cattle as a water source.

#### *4.1.4 Existing Land Use*

The Plan Area is located in both rural residential development (existing reservoir) and the Siesta Valley watershed lands (new dual reservoirs). The site of the new dual reservoirs is grazed by cattle and is visible from the De La Veaga trail. The De La Veaga Trail is a 2.9-mile EBMUD trail in the Siesta Valley that extends roughly southeast to northwest across the watershed lands. For much of its length, the new dual tanks will not be visible from the De La Veaga Trail, because the new dual tanks will be located just over elevated ridge lines from the trail alignment. However, at its nearest point, the De La Veaga Trail is approximately 500 feet southeast of the new dual tanks site, and the tops of the new dual tanks will be visible approaching this point from a portion of the De La Veaga Trail in both directions.

### **4.2 Biological Resources**

#### *4.2.1 Vegetation*

The existing reservoir within the Plan Area is developed and is predominantly paved with some landscaped vegetation along the boundary (EBMUD 2016, pp 14-17).

The Plan Area for the new dual reservoirs is within an annual grassland habitat, as defined by Mayer and Laudenslayer (1988). Annual grassland habitats are open grasslands, composed primarily of introduced annual grass species. Vegetative structure in annual grasslands depends largely on weather patterns and livestock grazing. Grass species composition is greatly influenced

by seasonal and annual fluctuations in weather patterns. Grass species observed within the Plan Area were typical of annual grasslands, and included wild oats (*Avena fatua* and *Avena barbata*), soft chess brome (*Bromus hordeaceus*), ripgut brome (*Bromus diandrus*), and Italian wildrye (*Festuca perennis*). Common forbs within the Plan Area included California poppy (*Eschscholzia californica*), rough cat's ear (*Hypochaeris radicata*), and longbeak stork's bill (*Erodium botrys*).

The grassland is bordered by coast live oak woodland to the north and east. The existing reservoir is located on the margin of annual grassland and coast live oak woodland habitat. The Plan Area is bordered by Monterey pines (*Pinus radiata*), which were planted for screening. From Sonoma County south, coastal oak woodlands are usually dominated by coast live oak (*Quercus agrifolia*) (Mayer and Laudenslayer 1988). Big leaf maple (*Acer macrophyllum*), valley oak (*Quercus lobata*), California bay (*Umbellularia californica*), madrone (*Arbutus menziesii*), and elderberry (*Sambucus nigra*) may also be present. Typical understory plants in dense coast live oak woodlands include shade tolerant shrubs, such as California blackberry (*Rubus ursinus*), creeping snowberry (*Symphoricarpos mollis*), coffeeberry (*Frangula californica*), toyon (*Heteromeles arbutifolia*), as well as herbaceous plants, such as bracken fern (*Pteridium aquilinum* var. *pubescens*), poison oak, California polypody (*Polypodium californicum*), and miner's lettuce (*Claytonia perfoliata*).

Coyote brush scrub habitat is present surrounding the Plan Area. Coyote brush scrub is a common and widespread scrub community found along the California coast, Coast Ranges, and the Sierra Nevada foothills. Coyote brush scrub is characterized by the presence of coyote brush and an indistinct assemblage of shrub, sub-shrub, and herbaceous understory associates (Sawyer et al. 2009). These scrub types consist of low shrubs up to six feet tall, with a well-developed herbaceous or low woody understory. Vegetative cover is usually dense, with scattered grassy openings. Stands of coyote brush may transition to forest and woodland habitats or exist as persistent, relatively stable communities.

The scrub patch adjacent to the Plan Area is in the late seral stage of succession, characterized by mature stands of coyote brush, with emergent oak and bay trees. Characteristic scrub species include poison oak, California blackberry, California rose (*Rosa californica*), and poison hemlock (*Conium maculatum*), among others. Bush monkeyflower (*Mimulus aurantiacus*), deer weed (*Acmispon glaber*) and California sagebrush (*Artemisia californica*) are also often present in local coyote brush scrub habitats. Ruderal habitat is present along the unpaved access road, fire road, and within the existing tank site. Ruderal habitat occurs where native vegetation has been removed by grading or other surface disturbances, and it is characteristic of roadsides and vacant lots. Ruderal areas often become recolonized by invasive exotic species, as well as scattered shrubs and trees. Structures within ruderal areas can provide habitat for many native and non-native wildlife species that are adapted to human disturbance.

#### 4.2.2 Wildlife

Many wildlife species use annual grasslands for foraging. Special grassland habitat features, such as cliffs, caves, ponds, or woody plants are used for breeding, resting, and escape cover (Mayer and Laudenslayer 1988). Wildlife characteristic of grasslands include western fence lizard (*Sceloporus occidentalis*), gartersnakes (*Thamnophis* spp.), western rattlesnake (*Crotalus oreganus*), California ground squirrel (*Otospermophilus beecheyi*), Botta's pocket gopher (*Thomomys bottae*), western harvest mouse (*Reithrodontomys megalotis*), California vole (*Microtus californicus*), badger (*Taxidea taxus*), and coyote (*Canis latrans*). Sensitive birds known to breed in annual grasslands include the burrowing owl (*Athene cunicularia*) and short-eared owl (*Asio flammeus*). Grasslands provide key foraging habitat for numerous raptor species.

Oak woodlands are considered vital habitats for the conservation of many bird and mammal species. Over 110 species of birds have been found to nest in coast live oak habitats (Mayer and Laudenslayer 1988). At least 60 species of mammals use oak habitats in various forms. Oak trees provide acorns, snags, trunk cavities, and litter that are used for food, nesting and cover by many species. California quail (*Callipepla californica*), gray squirrels (*Sciurus griseus*), and black-tailed deer (*Odocoileus hemionus columbianus*) are often completely dependent on acorns in fall. California slender salamander (*Batrachoseps attenuatus*), ensatina (*Ensatina eschscholtzii*), and California newt (*Taricha torosa*) can be found underneath surface litter and logs in oak habitats. A variety of special-status bat species, such as the pallid bat (*Antrozous pallidus*), may roost in mature oak snags or cavities. The San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*) dens in the blackberry and poison oak understory of this community. Coast live oak woodlands may provide migration and dispersal corridors for a variety of wildlife species.

Scrub habitat provides foraging and nesting habitat for bird species that are attracted to ecotones or the scrub canopy, such as white-crowned sparrow (*Zonotrichia leucophrys*), California quail, California towhee (*Melospiza crissalis*), dusky flycatcher (*Empidonax oberholseri*), wrentit (*Chamaea fasciata*), and the loggerhead shrike (*Lanius ludovicianus*). Mammals, such as the San Francisco dusky-footed woodrat, brush rabbit (*Sylvilagus bachmani*), Botta's pocket gopher, deer mice (*Peromyscus maniculatus*), and gray fox (*Urocyon cinereoargenteus*) use this habitat for cover and foraging. Coyote brush scrub habitat provides habitat for reptiles, such as common kingsnake (*Lampropeltis getula*), Alameda whipsnake, and western fence lizard.

## 5.0 POTENTIAL BIOLOGICAL IMPACTS AND TAKE ASSESSMENT

### 5.1 Direct and Indirect Impacts

Construction activities associated with the Project will result in permanent and temporary loss of suitable Alameda whipsnake habitat, and may result in the harm, harassment, injury, and death of individual Alameda whipsnakes. Removal of vegetation, earthwork, and the operation of heavy equipment at the Plan Area has potential to cause direct mortality of the Alameda whipsnake by running over them or crushing them while the snake is underground. Disturbance by increased human activity in the area may also result in disruption of Alameda whipsnake and prey behavior, and result in harm to individual whipsnakes.

Implementation of the mitigation, conservation, avoidance, and minimization measures will address the adverse effects to individuals, protect and manage occupied habitat in perpetuity, and contribute to recovery goals for the species. Compensation habitat will be secured on the EBMUD-owned Oursan Ridge Conservation Bank, a USFWS- and CDFW-approved bank. In addition, EBMUD will implement a rigorous set of Project conservation, avoidance, and minimization measures to minimize and/or avoid direct mortality to Alameda whipsnakes within the Plan Area. These measures are fully described in the following sections, and Table 1 details the acreage of impacts.

<b>Table 1. Acreage of Impacts to Alameda Whipsnake (AWS) Habitat within the Plan Area</b>					
<b>Project Component</b>	<b>Permanent</b>		<b>Temporary</b>		<b>Temporary</b>
	<b>AWS Critical Habitat</b>	<b>AWS Non-Critical</b>	<b>AWS Critical Habitat</b>	<b>AWS Non-Critical</b>	<b>Non-AWS Habitat</b>
New Reservoirs <sup>1</sup>	0.16	0	0	0	0
Old Reservoir Demolition <sup>2</sup>	0	0	0	0	0.40
Access Road New <sup>3</sup>	0.19	0.03	0	0	0
Potential Slope Stabilization <sup>4</sup>	0.6	0	0	0	0
Staging and Laydown <sup>5</sup>	0	0	1.55	0.05 <sup>6</sup>	0
<b>TOTAL</b>	0.95	0.03	1.55	0.05	0.40
<b>TOTAL AWS HABITAT</b>	0.98		1.60		0
<b>PROJECT TOTAL</b>	<b>2.98</b>				

<sup>1</sup>Includes ancillary facilities within graded area.

<sup>2</sup>Includes areas outside EBMUD watershed lands and outside Alameda whipsnake critical habitat; reservoir demolition area (0.4 acre) is mostly developed (paved) and will be used for construction staging without impacts to Alameda whipsnake habitat.

<sup>3</sup>Includes areas converted from gravel or grassland to asphalt.

<sup>4</sup>Includes areas potentially required for geotechnical slope stabilization to be determined during design phase—none or a portion of this area may be required; impacts may be permanent or temporary.

<sup>5</sup>Includes areas used for construction staging and laydown excluding permanent impact areas.

<sup>6</sup>Includes temporary construction staging area north of the new dual reservoirs site, outside EBMUD watershed lands and outside Alameda whipsnake critical habitat.

### 5.1.1 Direct Permanent Impacts

The features of the Project that will permanently impact Alameda whipsnake habitat include the new reservoirs, berms, access road, and the potential installation of additional slope stabilization features. The direct permanent impacts mostly occur in designated critical habitat with a small amount in non-critical habitat (Table 1). These include the 0.16-acre new reservoir footprint, 0.22-acre access road, and 0.6-acre slope stabilization (as necessary) as described previously and depicted in Figure 4. The water pipes servicing the new reservoirs will be placed underground within the new access road right-of-way, and no additional impacts will occur as part of pipeline installation. The 0.6-acre of slope stabilization may occur adjacent to the reservoirs and is described more thoroughly in the project description/covered activities section and shown in Figure 4. Although it is not anticipated that the slope will need this additional geotechnical stabilization, it is included in the Project out of an abundance of caution. If the slope stabilization is not required, and no disturbance occurs within this area, the compensatory habitat mitigation will be adjusted accordingly. In the unlikely event the slope stabilization is constructed, the Project will account and mitigate for all impacts consistent with all permit and reporting requirements.

### 5.1.2 Direct Temporary Impacts

The direct temporal impacts include construction and restoration of 1.60 acres of construction equipment staging and laydown areas, as described previously and depicted in Figure 4.

Construction activities rely upon staging materials and operating equipment adjacent to the area of permanent facilities and infrastructure. The existing reservoir demolition is restricted to developed habitat and is not within potential Alameda whipsnake habitat; therefore, the temporary impacts associated with demolition activities are not included in this total. All efforts are made to minimize this area of temporal impact and all of the habitat will be restored to its previous condition.

## **5.2 Anticipated Take of Alameda Whipsnake**

It is anticipated that all Alameda whipsnakes within the Plan Area will be incidentally harmed and/or harassed by disturbance and temporary and permanent habitat loss, due to construction of the new reservoirs, access road, staging and laydown areas, and demolition of the old reservoir.

It is anticipated that an Alameda whipsnake could be incidentally killed or injured in the course of constructing the Project.

## **5.3 Anticipated Impacts to Critical Habitat**

The Plan Area falls within Critical Habitat Unit 6-Caldecott Tunnel (USFWS 2006). Unit 6 is 4,151 acres in size.

It is anticipated that up to 0.95 acres of Critical Habitat Unit 6 will be permanently impacted and 1.55 acres will be temporarily impacted.

## **5.4 Anticipated impacts of the Taking**

Following EBMUD and WRA consultation with USFWS and CDFW, it has been determined that the Project is not likely to result in an appreciable reduction in the likelihood of the survival or recovery of the Alameda whipsnake on EBMUD lands or in this population. In addition, it has been determined that impacts to critical habitat will not significantly reduce the function or value of the Unit 6 to the Alameda whipsnake.

Primary constituent elements (PCE) for the Alameda whipsnake include (1) scrub/shrub communities, with a mosaic of open and closed canopy; (2) woodland or annual grassland plant communities contiguous to lands containing scrub/shrub communities, with a mosaic of open and closed canopy; and (3) lands containing rock outcrops, talus, and small mammal burrows within or adjacent to (1) and/or (2) (USFWS 2006). According to the final rule, Unit 6, "... is essential to the conservation of the subspecies not only as occupied habitat, but also as a connectivity corridor for Alameda whipsnake movement between Units 1 and 2."

- The overall scope of the Project is relatively small, with up to 0.95 acres of permanent and 1.55 acres of temporal impacts to Critical Habitat Unit 6 (Table 1). The permanent loss of Alameda whipsnake critical habitat will be small relative to the size of the overall critical habitat unit (0.02 % or less). The loss will be mitigated and offset with the purchase of up to 2.85 acres of credits at the Oursan Ridge Conservation Bank. Temporary impacts to Alameda whipsnake habitat, both critical and non-critical, will be minimized by restoration and revegetation with native vegetation. Temporary impacts to critical habitat will be mitigated with the purchase of up to 1.55 acres of credits at the Oursan Ridge Conservation Bank.



- The construction of the Project is short-term in nature, anticipated to occur for 18 to 24 months. During the construction period of the Project, rigorous measures will be implemented to avoid, minimize, and fully mitigate for impacts.
- The PCE's that are essential to the conservation value of Alameda whipsnake critical habitat will remain and will continue to contribute to the conservation function of Unit 6 as a whole.
- Range-wide critical habitat for Alameda whipsnake would be maintained as functional critical habitat. The connectivity between Unit 1 and Unit 2 will not be compromised, and the Alameda whipsnake will be no less viable than prior to the Project.

## 6.0 CONSERVATION PROGRAM

### 6.1 Biological Goals and Objectives

As part of the "Five Point" Policy adopted by the USFWS in 2000, HCPs must establish biological goals and objectives (65 FR 35242). The purpose of the biological goals is to ensure that the conservation elements in the HCP are consistent with the conservation and recovery goals established for the species. The following goals were developed based upon the species' biology, threats to the species, the potential effects of the covered activities, and the scope of the HCP.

#### 6.1.1 Goal 1: Avoid and Minimize Take in the Form of Injury or Mortality of Alameda Whipsnake

##### **Objective 1.1: Conduct pre-construction surveys for Alameda whipsnake**

A USFWS- and CDFW-approved biologist will conduct two pre-construction reconnaissance surveys to identify individual Alameda whipsnakes that may be present within the Plan Area prior to the commencement of construction activities that could result in injury or mortality of the species. The surveys will be scheduled seven days and 24 hours prior to initiation of project activities. The objective of pre-construction surveys is to identify any Alameda whipsnakes within the Plan Area and allow them to disperse, or if necessary, be relocated to nearby suitable habitat.

Following the second pre-construction survey, wildlife exclusion fence will be installed to prevent Alameda whipsnake from entering the construction area. Wildlife exclusion fence constructed of plywood, plastic, aluminum, or silt fence material will be installed around the work and staging areas. Wildlife exclusion fencing will be buried (six inches, minimum) to prevent animals passing under the fence and will be high enough (three feet, minimum) to prevent amphibians, reptiles, and small mammals from passing over the fence. All fence posts or stakes will be placed on the work-side of the fabric or other fence material to prevent entrapment of wildlife between the post and the material. Vegetation overhanging the fence will be trimmed. The fence will be inspected and repaired regularly. The fencing will be removed only when all construction equipment is removed from the Project site. Revegetation or planting activities may occur following removal of the exclusion fence. A barrier to prevent Alameda whipsnake from entering the Project site will be placed across access roads into and out of the work site and closed at the end of each work day.

**Objective 1.2: Conduct training, clearances, monitoring during initial activities, and compliance reporting**

The approved biologist will conduct pre-construction surveys, provide on-site monitoring during topsoil removal, provide biological training to workers, and conduct weekly site inspections over the 18-24 month term of the project. The approved biologists will also be responsible for tracking, documenting and preparing all required biological reports to document the contractor's compliance with EBMUD's permit conditions. The process of monitoring and reporting will be streamlined as the USFWS and CDFW approved biologist is responsible for all biological permit compliance.

A USFWS and CDFW approved biologist will be on-site for all initial ground disturbance and ground breaking activities in previously undisturbed habitats and both installation and removal of the exclusion fence. Daily pre-construction activity surveys will be conducted in the Plan Area by the USFWS- and CDFW-approved biologist when present, or an approved construction manager who has been trained on the requirements of the permit. The daily pre-construction survey will be to identify open trenches and excavations, exclusion fences, debris and equipment stock piles, and for all equipment prior to moving at the start of each work day in order to ensure no Alameda whipsnakes have migrated into the Plan Area during initial ground disturbing activities. A USFWS- and CDFW-approved biologist will visit the construction site weekly to inspect the wildlife exclusion fence and ensure ground-disturbing activities, including grading and excavation activities, are conducted according to the permit requirements. No weekly inspections will be required if no work is conducted during that week.

**Objective 1.3: Stop work and relocate any observed Alameda whipsnake**

If an Alameda whipsnake is encountered within the Plan Area during work activities, they will be relocated to the nearest suitable habitat outside of the Plan Area by a USFWS- and CDFW-approved and/or permitted biologist. The biologist will have the authority to order any reasonable measure necessary to avoid injury or mortality of Alameda whipsnake and to stop any work or activity that is not in compliance with the conditions set forth in the HCP. The Applicant will notify both the USFWS Sacramento and CDFW Region 3 Bay-Delta office within 24 hours of any relocation or issuance of a "stop work" order. This order will remain in effect until the issue has been resolved or the animal has moved outside the Plan Area on its own.

*6.1.2 Goal 2: Implement Conservation Actions for Alameda Whipsnake on EBMUD-Owned Lands Commensurate to the Scope of the Project*

**Objective 2.1 Secure credits at a USFWS- and CDFW-approved Conservation Bank**

Up to 4.40 acres of credits at the USFWS and CDFW approved Oursan Ridge Conservation Bank will be utilized to protect habitats managed and monitored specifically for the Alameda whipsnake. Oursan Ridge has rigorous management and performance criteria that are monitored and reported upon annually and demonstrate the effectiveness of the property to conserve the Alameda whipsnake.

**6.2 Measures to Avoid and Minimize Take**

Section 10(a)(2)(A) of the Act requires that an HCP specify the measures that the permittee will take to minimize and mitigate, to the maximum extent practicable, the impacts of the taking of any

Federally listed animal species as a result of activities addressed by the plan. The following measures will be implemented to satisfy the requirements of the permit.

- EBMUD will compensate at a 3:1 ratio for the permanent loss of up to 0.95 acres of habitat for the Alameda whipsnake by purchasing up to 2.85 acres of credits at the Oursan Ridge Conservation Bank.
- EBMUD will compensate at a 1:1 ratio for the temporal loss of 1.55 acres of habitat for the Alameda whipsnake by purchasing, 1.55 acres of credits at the Oursan Ridge Conservation Bank
- Exclusion fencing will be installed around all areas where heavy equipment is operated including staging areas, in order to avoid directly impacting Alameda whipsnakes. A USFWS- and CDFW-approved biologist will confirm the fence alignment with the Contractor in the field. Wildlife exclusion fence will be constructed of plywood, plastic, aluminum, or silt fence material; buried (six inches, minimum) to prevent animals passing under the fence; and will be a minimum of three feet above ground level. The wildlife exclusion fencing will contain one-way egress for special-status species to the extent possible. All fence posts or stakes will be placed on the work-side of the fabric or other fence material to prevent entrapment of wildlife between the post and the material. Vegetation overhanging the fence will be trimmed. A barrier to prevent Alameda whipsnake from entering the Project site will be placed across access roads into and out of the work site and closed at the end of each work day. The fencing will be removed only after all construction equipment is removed from the Project site. Revegetation or planting activities may occur following removal of the exclusion fence.
- A USFWS and CDFW-approved biologist will inspect the area inside the exclusion fence once installation is complete to ensure no whipsnakes are within the interior of the fence.
- Project work enclosed by exclusion fencing, including continued ground disturbing activities, may occur year-round.
- The exclusion fence will be inspected regularly, and at a minimum of once weekly by the USFWS and CDFW-approved biologist. If repairs are determined to be necessary, the repairs will be conducted immediately.
- New construction-related ground disturbance within any areas determined to be suitable Alameda whipsnake habitat will not occur between November 1 and March 31, in order to avoid potential disturbance to hibernating Alameda whipsnakes. As stated in the previous measure, work within the exclusion fence may occur year-round if work was initiated prior to October 31.
- Vegetation not proposed to be removed for the access road will be identified using orange construction fencing and avoided. Exclusion and construction fencing will begin to be removed within 72 hours of completion of work. All fencing will be removed within 14 days of completion. Revegetation may occur following fence removal.
- No mono filament plastic will be used for erosion control.
- Each work day, construction crews or an on-site biological monitor will inspect open trenches in the morning prior to initiation of work and in the evening following completion of work for trapped reptiles.
- Ground disturbance in suitable habitat, including staging areas, will be limited to the described construction footprint in Figure 4.
- Work will occur during daylight hours only and will not occur between 30 minutes prior to sunset and 30 minutes after sunrise.
- A USFWS and CDFW-approved biological monitor will visit the construction site weekly and conduct a reconnaissance level survey for Alameda whipsnakes, as well as ensure

all construction operations and exclusion fence are in compliance with the permits and plan. If no Project activities occur within a week, no weekly inspection will be required.

- A qualified USFWS and CDFW-approved biologist either possessing a valid ESA Section 10(a)(1)(A) permit, or approved under this Project's USFWS and/or CDFW issued ITP will, if possible, capture and move any Alameda whipsnakes or other reptiles to nearby suitable habitat if found inside the fenced area.
- A monitoring report of all activities associated with surveys and mitigation for this species will be submitted to the USFWS and CDFW by EBMUD no later than three months after construction is completed. The monitoring report will describe methods and results of any field survey efforts and mitigation measures implemented before, during or after project construction.

### **6.3 Measures to Mitigate the Unavoidable Take**

The permanent loss of up to 0.95 acres and temporal impacts to 1.55 acres of Alameda whipsnake critical habitat will be small, relative to the size of the overall amount of habitat available to the Alameda whipsnake in the Siesta Valley area. In addition, the impacts to Alameda whipsnake critical habitat Unit 6 will be comparatively small, relative to the overall size of the critical habitat unit. The impacts to Alameda whipsnake habitat will be mitigated and offset with the purchase of credits at the Oursan Ridge Conservation Bank. Credits at the USFWS and CDFW-approved Oursan Ridge Conservation Bank will be used to protect habitats managed and monitored specifically to maintain viability of the Alameda whipsnake.

### **6.4 Monitoring**

Monitoring tracks compliance with the terms and conditions of the HCP and ITP. There are three types of monitoring, which are (1) compliance monitoring during construction activities, tracking the permittee's compliance with the requirements specified in the HCP and ITP; (2) effects monitoring, tracking the impacts of the covered activities on the covered species; and (3) effectiveness monitoring, tracking the progress of the conservation strategy in meeting the HCP's biological goals and objectives (including species surveys, reproductive success, etc.). Monitoring provides information for making adaptive management decisions.

#### *6.4.1 Compliance and Effects Monitoring*

A weekly site visit and inspection will be conducted by a USFWS and CDFW-approved biological monitor during active construction periods of the Project duration (estimated to be 18-24 months), in order to ensure all avoidance and minimization measures described above in Section 6.3 are implemented, and that the terms of the permit are being complied with. The weekly reconnaissance level surveys during construction will track compliance with the HCP and ITP, as well as help identify Alameda whipsnake that may have moved into the Plan Area, meeting the objectives of monitoring (1) and (2) above. Once construction has completed no further monitoring within the Plan Area is required.

#### *6.4.2 Effectiveness Monitoring*

Oursan Ridge Conservation Bank has rigorous CDFW- and USFWS-approved management and performance criteria that are monitored and reported upon annually, and demonstrate the effectiveness of the property to conserve the Alameda whipsnake.

Effectiveness monitoring at the Plan Area will be conducted following revegetation. Revegetation is limited to annual grassland habitats which will be seeded following completion of Project

activities. Post-construction monitoring will occur to document when site conditions have returned to pre-construction conditions and will be developed as appropriate commensurate to Project effects.

## **6.5 Adaptive Management Strategy (As Needed)**

Adaptive management is defined in the HCP handbook as a method for examining alternative strategies for meeting measurable biological goals and objectives, and then, if necessary, adjusting future conservation management actions according to what is learned. Given the short duration of the construction of approximately 18 to 24 months, and the relative small construction footprint of less than 2.6 acres, a formal adaptive management program has not been developed for Project impacts. The mitigation for the Project is to be completed at a conservation bank that includes adaptive management measures already approved by USFWS and CDFW. Should the Project be delayed and therefore extend outside the duration of the permit, or should Alameda whipsnake activity in the Plan Area be higher than anticipated, the Applicant shall consult with the USFWS and CDFW on appropriate measures to address the situation.

## **6.6 Reporting**

### *6.6.1 Project Status and Impacts*

The Project is relatively short in duration of approximately 18 to 24 months, and all activities are anticipated to be completed consecutively, in an efficient and timely manner, to minimize construction costs and achieve water supply reliability. Any delays or disruptions that may impact the Project schedule will be reported to the USFWS and CDFW, when the situation is apparent. Within 90 days of Project completion, a report will be prepared and submitted to the USFWS and CDFW, documenting all Project activities, status, and impacts.

### *6.6.2 Take Tracking*

The amount and extent of take is relatively small in terms of the habitat impacted, less than 2.6 acres, and is carefully described in this conservation plan and permit application. Careful monitoring of the construction activities will assure that impacts beyond those described in this HCP are unlikely to occur. In addition to the habitat impacts, the Applicant anticipates that injury and/or mortality to an Alameda whipsnake, although unlikely, could occur. Should an Alameda whipsnake mortality occur, the Applicant(s) representative shall contact the USFWS and CDFW immediately, or within 48 hours, based on agency availability. Upon completion of the Project construction, a report will be prepared and submitted to the USFWS and CDFW, documenting all Project activities, implementation of avoidance and minimization measures, and all take, in terms of Alameda whipsnake habitat impacts and/or mortality and/or injury.

### *6.6.3 Avoidance, Minimization, and Monitoring*

A listing of all avoidance, minimization, and monitoring measures are described in Section 6.3. Within 90 days following completion of the project construction, a report will be prepared and submitted to the USFWS and CDFW, documenting all Project activities and implementation of all avoidance, minimization, and mitigation measures.

#### *6.6.4 Mitigation*

The Applicant will implement mitigation in the form of acquisition of Alameda whipsnake credits at the CDFW- and USFWS-approved Oursan Ridge Conservation Bank. A fully executed copy of the credit sale agreement will be provided to the agencies prior to the initiation of construction.

#### *6.6.5 Funding*

Implementation of all components of the Project, including construction, monitoring, and surveys, will be funded by the Applicant. The Mitigation Credit acquisition will occur on the Applicant-owned Oursan Ridge Conservation Bank and a copy of the sales agreement for the purchase of the mitigation credits will be provided to the USFWS and a Mitigation Payment Transmittal Form (DFW1057) will be provided to the CDFW prior to initiation of Project activities. Within 90 days of the Project completion, a report will be prepared and submitted to the USFWS and CDFW, documenting all the funding of Project activities.

## **7.0 CHANGED AND UNFORESEEN CIRCUMSTANCES**

Section 10 of the ESA regulations [(69 FR 71723, December 10, 2004 as codified in 50 CFR Sections 17.22(b)(2) and 17.32(b)(2))] require that an HCP specify the procedures to be used for dealing with changed and unforeseen circumstances that may arise during the implementation of the HCP. In addition, the HCP No Surprises Rule [50 CFR 17.22 (b)(5) and 17.32 (b)(5)] describes the obligations of the Applicant and the Service. The purpose of the No Surprises Rule is to provide assurance to the non-federal landowners participating in habitat conservation planning under the ESA that no additional land restrictions or financial compensation will be required for species adequately covered by a properly implemented HCP, in light of unforeseen circumstances, without the consent of the Applicant.

### **7.1 Changed Circumstances**

Changed circumstances are defined in 50 CFR 17.3 as changes in circumstances affecting a species or geographic area covered by an HCP that can reasonably be anticipated by plan developers and the Service, and for which contingency plans can be prepared. If additional conservation and mitigation measures are deemed necessary to respond to changed circumstances, and these additional measures were already provided for in the plan's operating conservation program (e.g., the conservation management activities or mitigation measures expressly agreed to in the HCP or ITP), then the Applicant will implement those measures as specified in the plan. However, if additional conservation management and mitigation measures are deemed necessary to respond to changed circumstances, and such measures were not provided for in the Plan's operating conservation program, the Service will not require these additional measures without the consent of the Applicant, provided that the HCP is being "properly implemented" (properly implemented means the commitments and the provisions of the HCP and the ITP have been or are fully implemented). The following changed circumstances have been identified for the Project HCP and include presence of a newly listed species and/or a discovery of a listed species previously unknown to occur near the Project and climate change.

#### *7.1.1 Newly Listed Species*

Based on the relatively small area of impact of less than 2.6 acres, the short duration of the proposed action of approximately 18 to 24 months, and the permit term of 15 years, the Applicant

is not aware of any species that are currently being considered, or likely to be considered, for listing with potential to occur in the Plan Area or be affected by the Project. However, if a species is listed under the ESA during the term of the ITP and may occur within the Plan Area, the permit will be reevaluated by the USFWS. Based upon the results of this review, covered activities could be modified to ensure they are not likely to jeopardize or result in take of this species. The Applicant will implement modifications to covered activities identified by the USFWS, as necessary, to avoid the likelihood of jeopardy to, or take of, the newly listed species and/or adverse modifications to designated critical habitat for this species. The Applicant or his/their legal successor(s) will continue to implement such modifications until such time as the Applicant has done one of two things: (1) applied for, and received USFWS approval of, an amendment to the ITP to cover the newly listed species or (2) the USFWS notifies the Applicant in writing that the modifications to the HCP covered activities are no longer required to avoid the likelihood of jeopardy of the newly listed species or adverse modification of newly designated critical habitat.

#### *7.1.2 Discovery of a Listed Species Previously Unknown in Plan Area*

In the event that a listed species, not previously known to occur in the Plan Area, is detected during the permit term, the Applicant will cease construction activities that are likely to result in take of this species and work with the USFWS to develop a permit amendment to address said species. For this Project, it is extremely unlikely that any other listed species will be identified on-site based on previous biological surveys, its relatively small size, limited area of impact, and the limited Project scope.

#### *7.1.3 Climate Change*

It is known that Alameda whipsnake are adapted to warmer conditions, but they do have preferences for times of day when they are most active (USFWS 2011). Drought and changes in climate conditions can alter the temperature regimes over time that may adversely affect the Alameda whipsnake; however, due to the short duration of the proposed action of approximately 18 to 24 months and the permit term of 15 years, the Applicant does not anticipate any demonstrable changes in Alameda whipsnake behavior or viability due the long term effects of climate change.

### **7.2 Unforeseen Circumstances**

Unforeseen circumstances are defined in 50 CFR 17.3 as changes in circumstances that affect a species or geographic area covered by the HCP that could not reasonably be anticipated by plan developers and the USFWS at the time of the HCP's negotiation and development, and that result in a substantial and adverse change in status of the covered species. The purpose of the No Surprises Rule is to provide assurances to non-federal landowners participating in habitat conservation planning under the ESA that no additional land restrictions or financial compensation will be required for species adequately covered by a properly implemented HCP, in light of unforeseen circumstances, without the consent of the Applicant.

In case of an unforeseen event, the Applicant will notify the USFWS as soon as possible. To determine if the event constitutes an unforeseen circumstance, the USFWS will consider, but not be limited by, the following factors: size of the current range of the affected species, percentage of range affected by the HCP, percentage of range conserved by the HCP, ecological significance of that portion of the range affected by the HCP, level of knowledge about the affected species, the degree of specificity of the species' conservation program under the HCP, and whether failure

to adopt additional conservation measures would appreciably reduce the likelihood of survival and recovery of the affected species in the wild.

If the USFWS determines that additional conservation and mitigation measures are necessary to respond to an unforeseen circumstance, and the HCP is being properly implemented, additional measures required of the Applicant must be as close as possible to those in the HCP and limited to modifications within conserved habitat area(s) or adjustments to lands already set aside in the HCP's operating conservation program. Additional conservation and mitigation measures would involve the commitment of additional land or financial compensation or restrictions on the use of land or other natural resources otherwise available for development or use under original terms of the HCP only with the consent of the Applicant.

## **8.0 FUNDING**

### **8.1 Costs and Budget for the Conservation Program and Plan Implementation**

The overall planning-level cost estimate for the Project is approximately seven million dollars, and includes planning, design, construction, construction management, and inspection costs. Imbedded in this projection are the costs associated with the endangered species permitting, including permit and conservation plan preparation, monitoring, and restoration, which are estimated to be \$450,000. Also included in the cost projection are the administrative costs of the credits, which will be deducted from the Applicant's Oursan Ridge Conservation Bank.

### **8.2 Funding Sources, Mechanisms, and Assurances**

The Applicant will be responsible for the full cost of funding the implementing the Plan, including avoidance, minimization, and mitigation measures; changed circumstances; and any reporting requirements of the Permit. The Applicant understands that failure to provide adequate funding and/or failure to implement the terms of this HCP in-full could result in Permit suspension or Permit revocation.

The Applicant is a public municipal utility district established under the Municipal Utility District Act (as codified by the Public Utilities Code of the State of California, Ch. 764, Stats.1951, and thereafter amended.) EBMUD provides water and wastewater treatment to its customers for rates and charges established by the Board of Directors. In addition to the direct charges for service that EBMUD collects from its customers, EBMUD receives revenue from the sale of water and hydroelectric power. The monies are used to plan, maintain and operate the facilities and will be used to fully fund this Project.

## **9.0 PERMIT/HCP ADMINISTRATION (OPTIONAL)**

Based on the short duration of the Permit term and Project implementation, the Applicant does not anticipate needing an Amendment, Renewal, or Transfer.



## 10. REFERENCES

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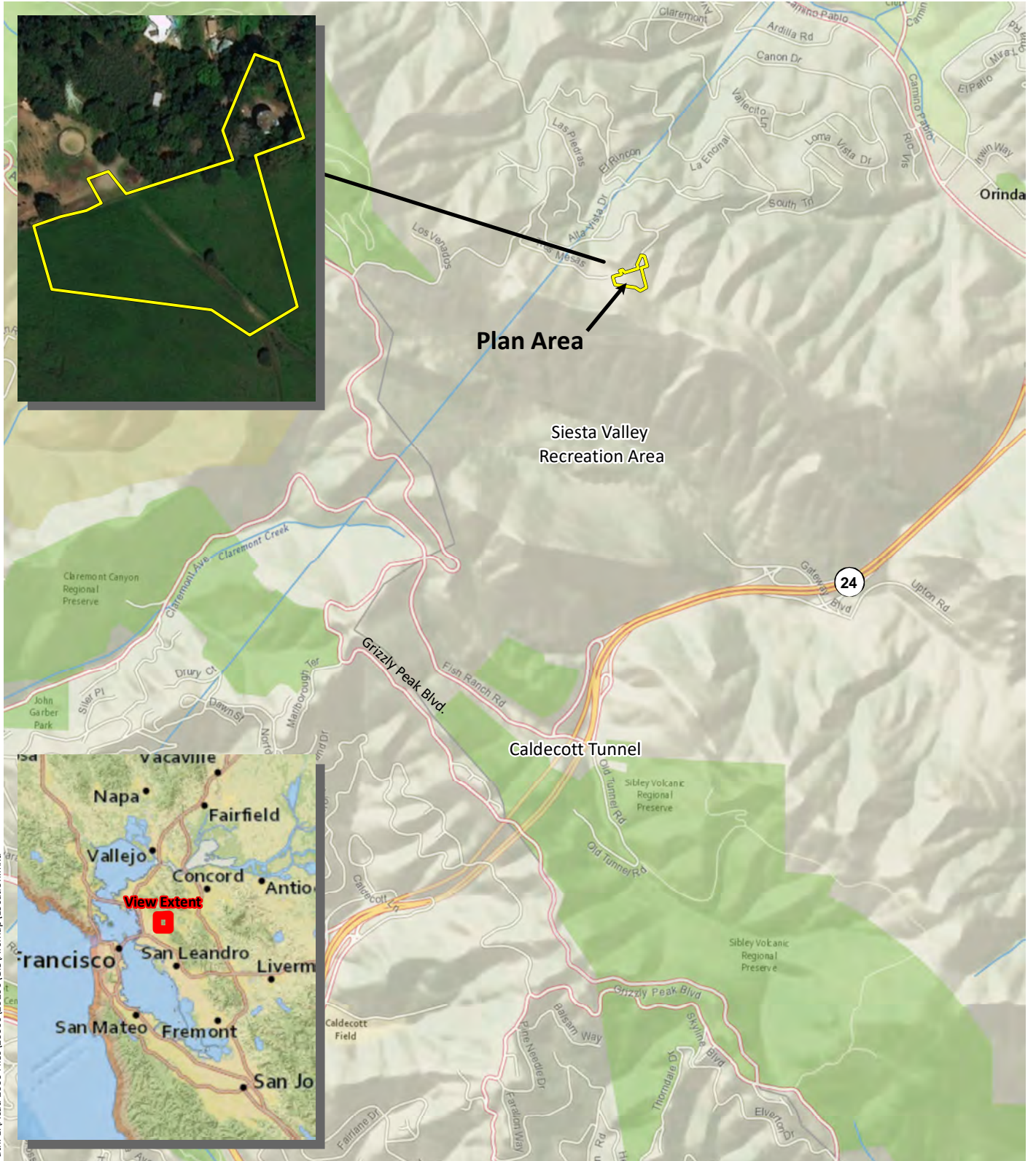
(USFWS NWI) U.S Fish and Wildlife Service National Wetlands Inventory  
<http://www.fws.gov/wetlands/> Accessed October 2015.

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**APPENDIX A**

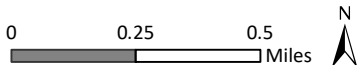
**FIGURES**

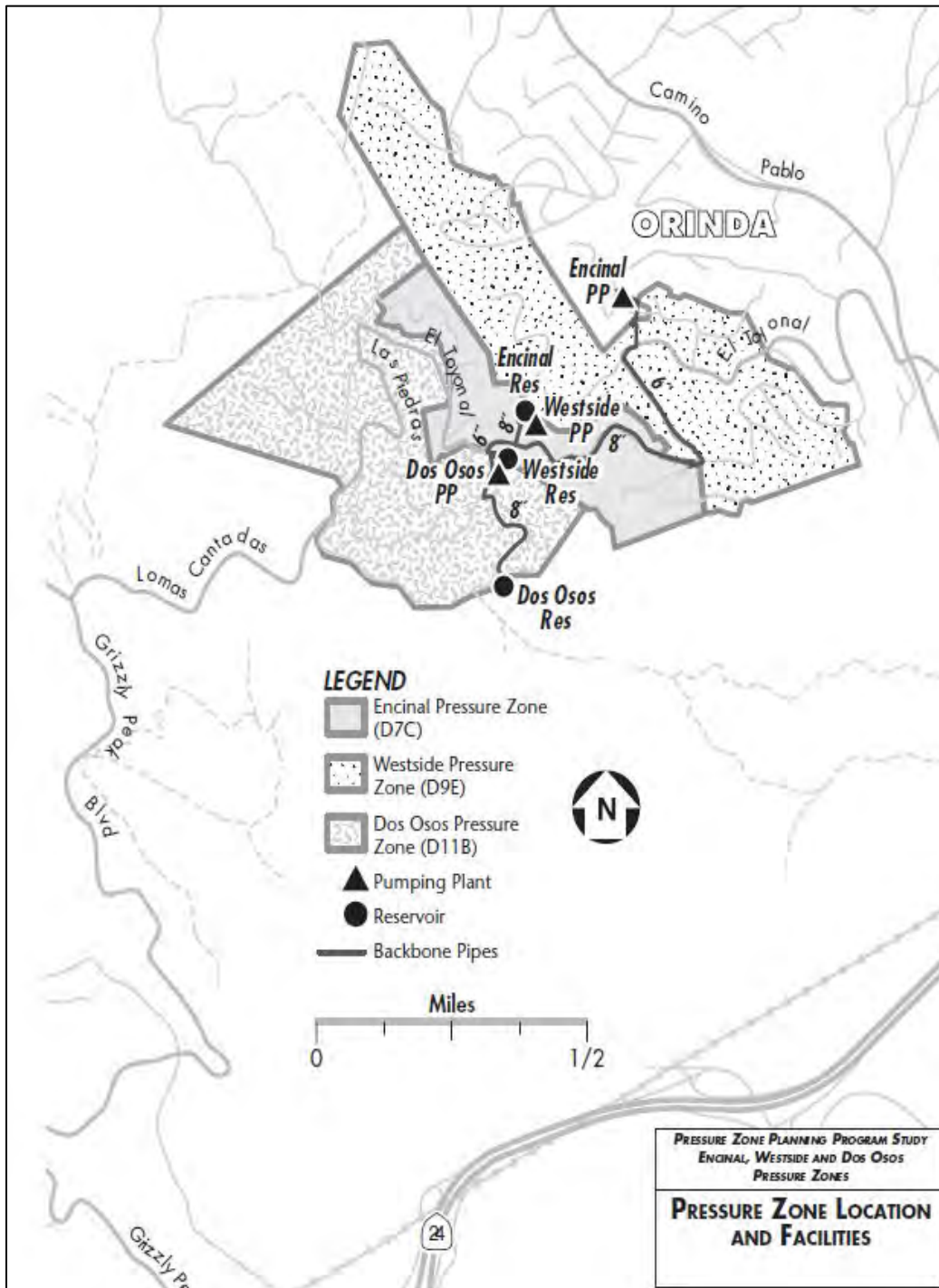


Sources: National Geographic, WRA | Prepared By: njander, 1/2/2019

**Figure 1. Plan Area Location**

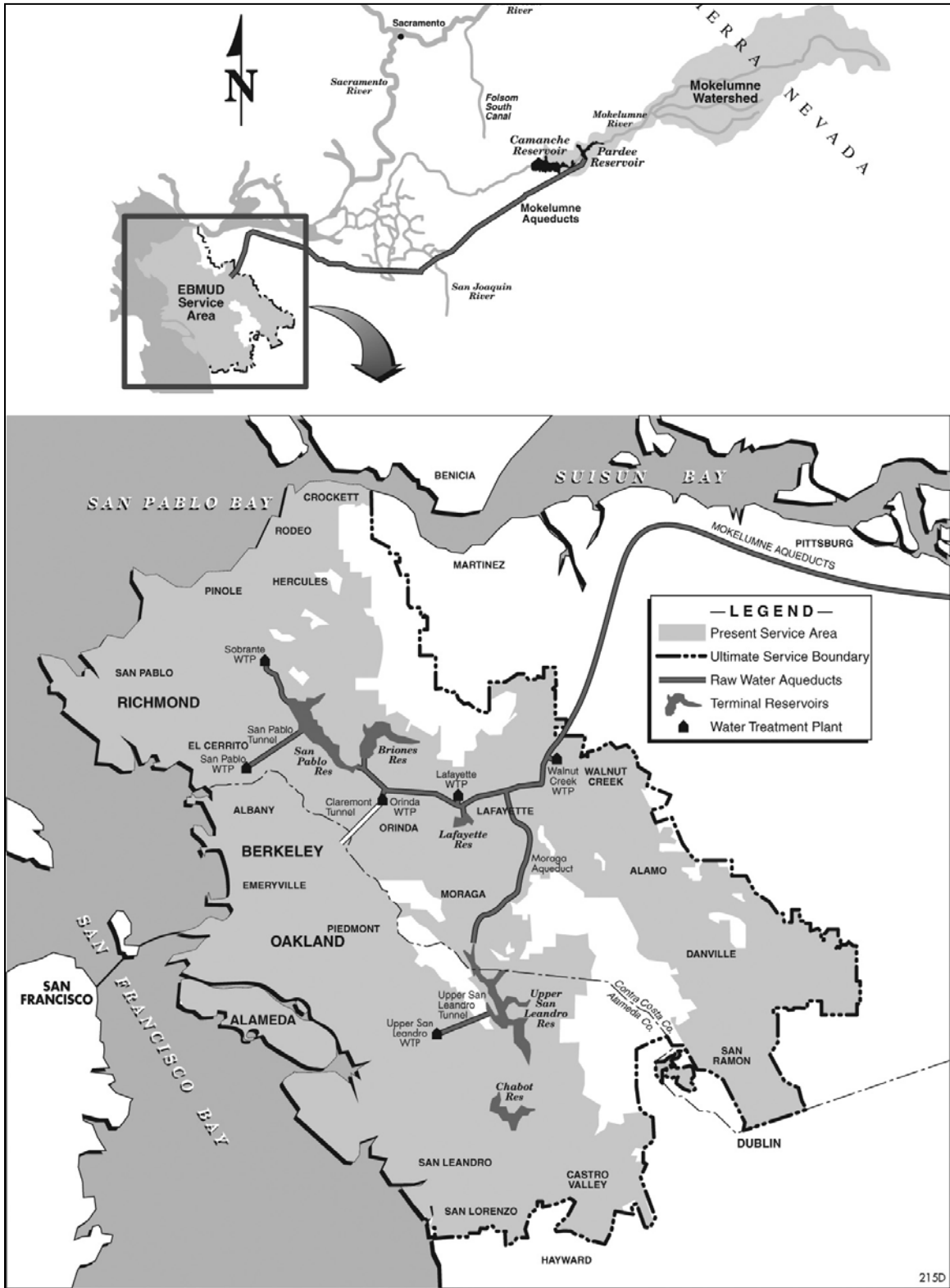
Dos Osos Reservoir Replacement Project  
Orinda, Contra Costa County, California





**Pressure Zone Location and Facilities**

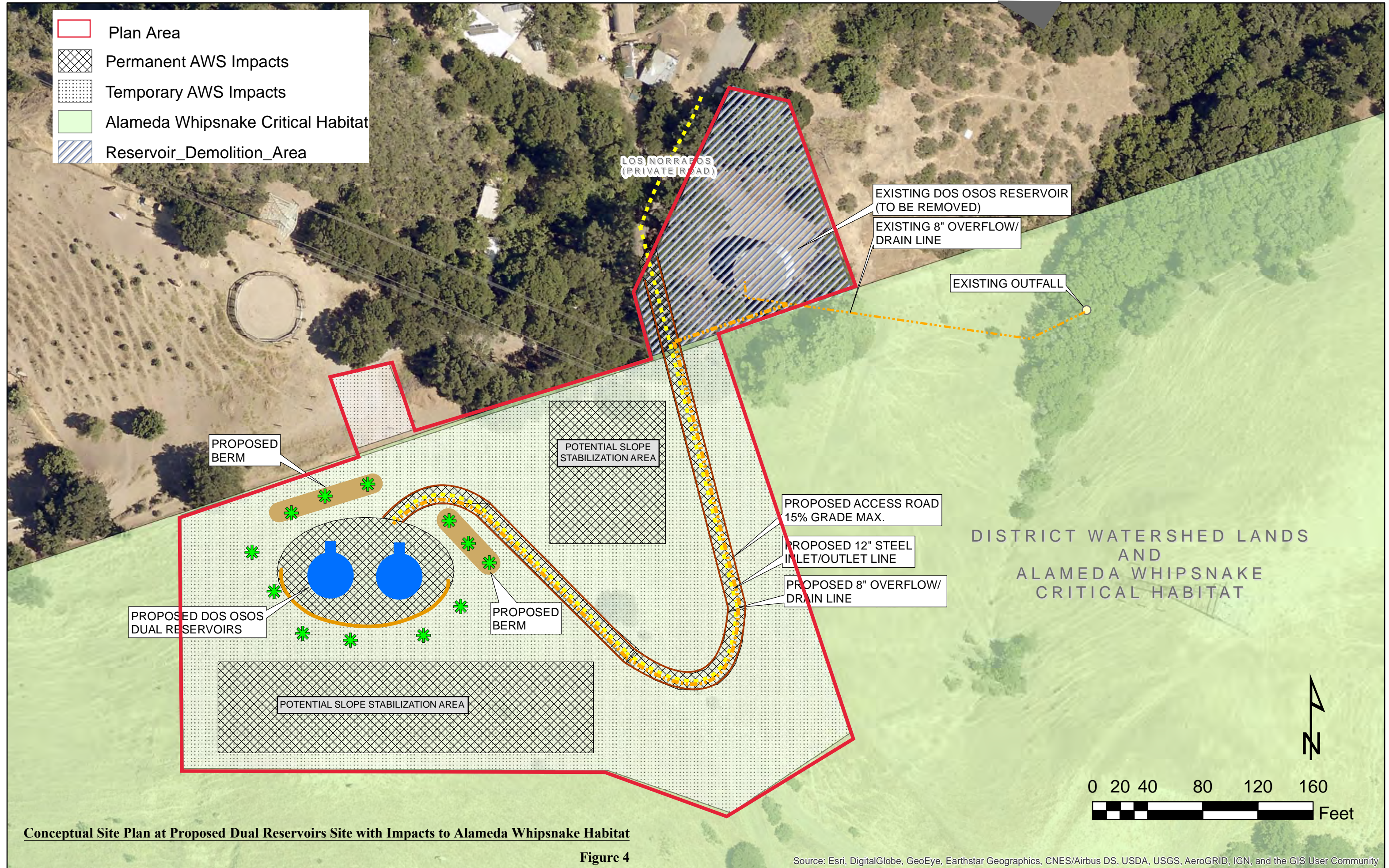
**Figure 2**



**East Bay Municipal Utility District Service Area**

**Figure 3** (Source EBMUD)

- Plan Area
- Permanent AWS Impacts
- Temporary AWS Impacts
- Alameda Whipsnake Critical Habitat
- Reservoir\_Demolition\_Area



**Conceptual Site Plan at Proposed Dual Reservoirs Site with Impacts to Alameda Whipsnake Habitat**

**Figure 4**

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**APPENDIX B**  
**SITE PHOTOGRAPHS**





Existing Dos Osos steel-welded reservoir. View from Los Norrabos Road gate, facing south. Photo taken on December 18, 2017.



View facing southeast of proposed new reservoirs location. Photo taken on December 18, 2017.



View of existing access road and location of proposed new access road. Facing southeast. Photo taken on December 18, 2017.



View of existing access road (left), location of proposed new access road (center), and existing reservoir (right). Facing northwest. Photo taken on December 18, 2017.

**APPENDIX C**

**DOS OSOS RESERVOIR REPLACEMENT PROJECT FINAL MITIGATED NEGATIVE  
DECLARATION (OCTOBER 2017)**

# **DOS OSOS RESERVOIR REPLACEMENT PROJECT**

**ORINDA, CALIFORNIA**

## **FINAL MITIGATED NEGATIVE DECLARATION**



**EAST BAY MUNICIPAL UTILITY DISTRICT**

**October 2017**

**NOTE: The Dos Osos Reservoir Replacement Project Mitigated Negative Declaration dated May 2017, together with the added Appendix C, “Response to Comments,” comprise the Final Mitigated Negative Declaration.**





**NOTICE OF INTENT TO ADOPT A MITIGATED NEGATIVE DECLARATION  
Dos Osos Reservoir Replacement Project**

**Project Title:** Dos Osos Reservoir Replacement Project (Project)

**Lead Agency:** East Bay Municipal Utility District (EBMUD)

**Project Location:** 8 Los Norrabos and 263 El Toyonal, City of Orinda and EBMUD-owned Watershed Land, unincorporated Contra Costa County (immediately contiguous to City of Orinda boundary)

**Project Description:** EBMUD’s existing 0.24-million-gallon (MG) Dos Osos Reservoir will be replaced with new dual 0.12 MG, steel-bolted reservoirs on EBMUD-owned watershed property approximately 70 feet higher in elevation, 300 feet southwest of the existing Dos Osos Reservoir site in the City of Orinda. A new, 12-inch, inlet-outlet pipeline will be constructed to connect the existing water distribution system to the new dual reservoirs and will be located in an approximately 800-foot-long permanent access road that will be constructed from Los Norrabos to the new dual reservoirs. EBMUD’s existing Dos Osos Pumping Plant, located at 263 El Toyonal, Orinda, is a 0.3-million-gallons-per-day (MGD) pumping plant that will be rehabilitated at the same capacity; however, the Dos Osos Pumping Plant will be upgraded with pump units that can pump to a higher total dynamic head (i.e., pump to a higher elevation) to serve the new dual Dos Osos Reservoirs. Upon construction completion and successful testing of the new facilities, the existing Dos Osos Reservoir will be demolished.

**Project Objective:** The Project is designed to rehabilitate and replace critical aging water distribution facilities in order to increase both system reliability and operating efficiency.

**Schedule:** Key milestones for project implementation are summarized as follows:

Complete Environmental Review	May 2017
Develop Bid Construction Documents	2022
Begin Construction	2023
Complete Construction	2024

**Environmental Determination:** Pursuant to the requirements of the California Environmental Quality Act, an Initial Study was prepared for the Project. Based on the results of the Initial Study, it was determined that project-related construction work could potentially generate environmental impacts to biological resources and geology/soils. Long-term reservoir and pumping plant operation will not generate significant impacts. Proposed mitigations will be implemented into the Project to ensure that the Project will not generate a significant adverse impact on the environment. Based on this assessment, a Mitigated Negative Declaration has been prepared.

**Environmental Mitigation:** All impacts will be reduced to Less than Significant levels by implementation of proposed mitigation measures.

**Public Comment/Review:** The Mitigated Negative Declaration is available for review at:

- East Bay Municipal Utility District, 375 11th Street, Oakland, CA 94607
- EBMUD website ([www.ebmud.com](http://www.ebmud.com))
- City of Orinda Library, 26 Orinda Way, Orinda, CA 94563

In accordance with Section 15073 of the California Environmental Quality Act Guidelines, this Mitigated Negative Declaration is available for public review from May 19, 2017 through June 19, 2017. Written comments on this proposed Mitigated Negative Declaration must be received no later than 4:30 p.m. on June 19, 2017. Please address comments to East Bay Municipal Utility District, Chien Wang, Associate Civil Engineer, 375 11th Street, M/S 701, Oakland, California 94607, or email to [dosososreservoir@ebmud.com](mailto:dosososreservoir@ebmud.com).

5-18-2017

Date

Xavier J. Irias

Director of Engineering and Construction



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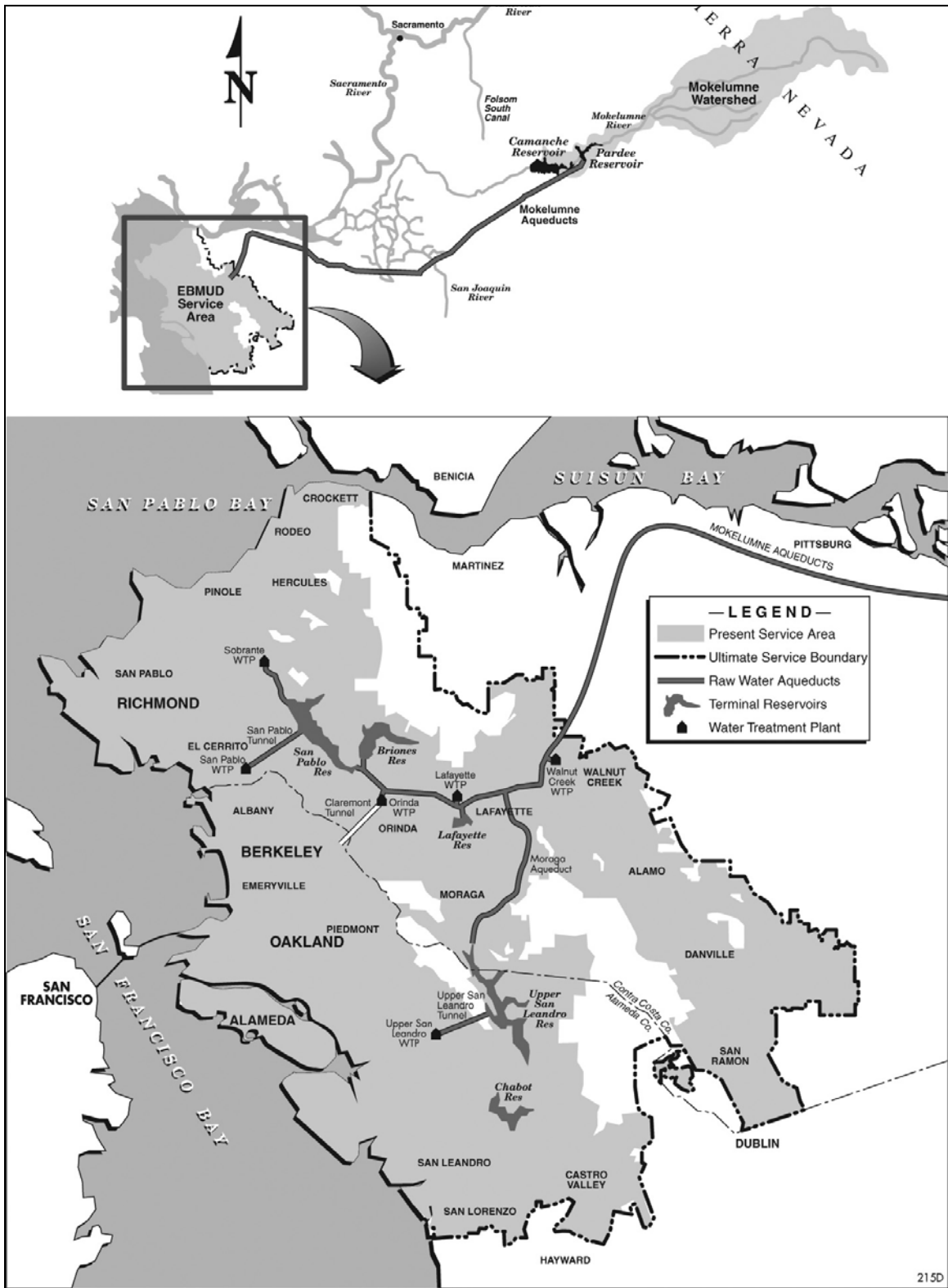
- A Mitigation Monitoring and Reporting Plan
- B EBMUD Practices and Procedures Monitoring and Reporting Plan
- C Response to Comments

## **CHAPTER 1**

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### **SUMMARY**

East Bay Municipal Utility District (EBMUD) provides water service to 20 incorporated cities and 15 unincorporated areas in Alameda and Contra Costa Counties (Figure 1.1). The water distribution system is comprised of six water treatment plants, over 4,200 miles of potable (treated water) distribution and transmission pipes, 175 potable water reservoirs, 130 pumping plants, and numerous accessory structures that altogether provide water service to EBMUD's approximately 1.4 million customers.



East Bay Municipal Utility District Service Area

Figure 1.1 (Source EBMUD)

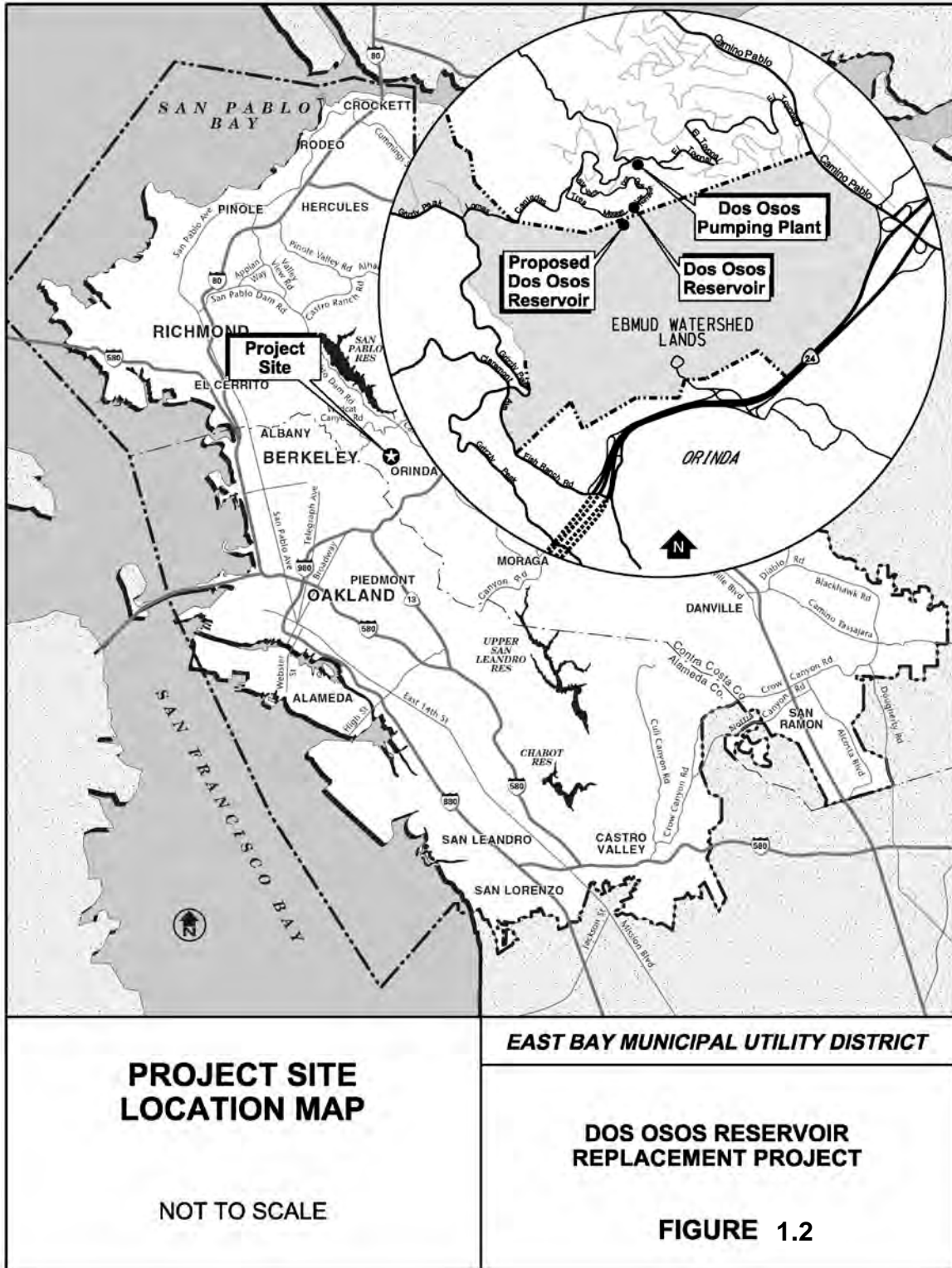
## **1.1. Project Objective**

The Dos Osos Reservoir Replacement Project (Project) includes replacement of EBMUD's existing Dos Osos Reservoir and associated rehabilitation of the Dos Osos Pumping Plant. Both facility projects were detailed as part of a regional study of the Encinal, Westside and Dos Osos Pressure Zones Cascade (Encinal Cascade) (EBMUD 2015) located in the City of Orinda, California, to identify necessary improvements based on the need to rehabilitate and/or replace aging infrastructure, improve water quality operations efficiency by removing excess water storage, and improve domestic and emergency water service reliability.

The Dos Osos Reservoir was evaluated and recommended for rehabilitation in the EBMUD Infrastructure Rehabilitation Plan for Distribution Reservoirs 2012 Update (update to the EBMUD Distribution System Master Plan for Reservoirs, 2008), which documented existing conditions of EBMUD reservoirs and prioritized facility rehabilitations and replacements. The Orinda Fire Flow Comprehensive Engineering Study (EBMUD, 1999) determined that the Dos Osos Reservoir is located too low in elevation resulting in low-pressure areas along Alta Vista and Lomas Cantadas and should be replaced at a higher elevation.

EBMUD's existing 0.24-million-gallon (MG) Dos Osos Reservoir will be replaced with new dual 0.12-MG steel-bolted reservoirs on EBMUD-owned watershed property approximately 70 feet higher in elevation, 300 feet southwest of the existing Dos Osos Reservoir site in the City of Orinda. A new, 12-inch inlet-outlet pipeline will be constructed to connect the existing water distribution system to the new dual reservoirs and will be located in an approximately 800-foot-long permanent access road that will be constructed from Los Norrabos to the new dual reservoirs. EBMUD's existing Dos Osos Pumping Plant, located at 263 El Toyonal, Orinda, is a 0.3-million-gallons-per-day (MGD) pumping plant that will be rehabilitated at the same capacity; however, the Dos Osos Pumping Plant will be upgraded with pump units that can pump to a higher total dynamic head (TDH) to serve the new dual Dos Osos Reservoirs. Upon construction completion and successful testing of the new facilities, the existing Dos Osos Reservoir will be demolished.

Figure 1.2 shows a project vicinity map, including the existing Dos Osos Reservoir, the new dual Dos Osos Reservoirs' location, and the existing Dos Osos Pumping Plant.



Project Vicinity Map  
 Figure 1.2

## **1.2. Purpose of Mitigated Negative Declaration**

This Mitigated Negative Declaration (MND) assesses the potential environmental impacts related to the Project proposed by EBMUD and has been prepared in accordance with the California Environmental Quality Act (CEQA) statutes and guidelines in which EBMUD is the lead agency. EBMUD has incorporated mitigations into the Project to mitigate the potentially significant impacts identified in the Initial Study such that no significant impacts will occur. These mitigations are summarized in the attached Mitigation Monitoring and Reporting Plan (MMRP), see Appendix A.

## **1.3. Summary of Environmental Considerations**

Based on the results of the Initial Study, project-related construction work could potentially generate environmental impacts to biological resources and geology/soils. Mitigation measures incorporated into the Project that will reduce impacts to Less than Significant levels are discussed in Chapter 3 of this MND. Long-term reservoir and pumping plant operation will not generate any significant impacts. EBMUD determined that an MND is the appropriate level of CEQA review for this Project. The mitigations that have been incorporated in the Project are summarized in the attached MMRP.

## **1.4. List of Referenced Studies by Environmental Topic**

**Biological Resources** – EBMUD, July 2016. Biological Resources Evaluation for the Dos Osos Reservoir Replacement Project. Prepared by EBMUD Fisheries and Wildlife Service Division for the Water Distribution Planning Division.

**Noise** – EBMUD, January 2017. Dos Osos Reservoir Replacement Project Noise and Vibration Analysis. Prepared by EBMUD Water Distribution Planning Division.

## **1.5. Circulation of the MND**

In accordance with CEQA, a good faith effort has been made by EBMUD during the preparation of the Initial Study and MND to contact affected agencies, organizations and persons who may have an interest in the Project. In reviewing the Initial Study and MND, affected persons and public agencies should focus on the sufficiency of the document in identifying and analyzing the possible impacts on the environment and the ways in which the significant effects of the Project were avoided or mitigated.

Comments on the Initial Study and MND may be made in writing before the end of the comment period. A 30-day review and comment period has been established in accordance with §15205(d) of the CEQA Guidelines. Following the close of the public comment period, which ends on June 10, 2017 at 4:30 p.m., EBMUD will consider this Initial Study and MND and comments thereto in determining whether to approve the proposed Project.

The Initial Study and MND are available online on EBMUD's webpage ([www.ebmud.com](http://www.ebmud.com)). Written comments should be sent to EBMUD's street address or email address as follows:

*Mitigated Negative Declaration*  
*Dos Osos Reservoir Replacement Project*

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East Bay Municipal Utility District  
Chien Wang, Associate Civil Engineer    *or*  
375 11th Street, M/S 701  
Oakland, CA 94607

[dososreservoir@ebmud.com](mailto:dososreservoir@ebmud.com)

## **CHAPTER 2**

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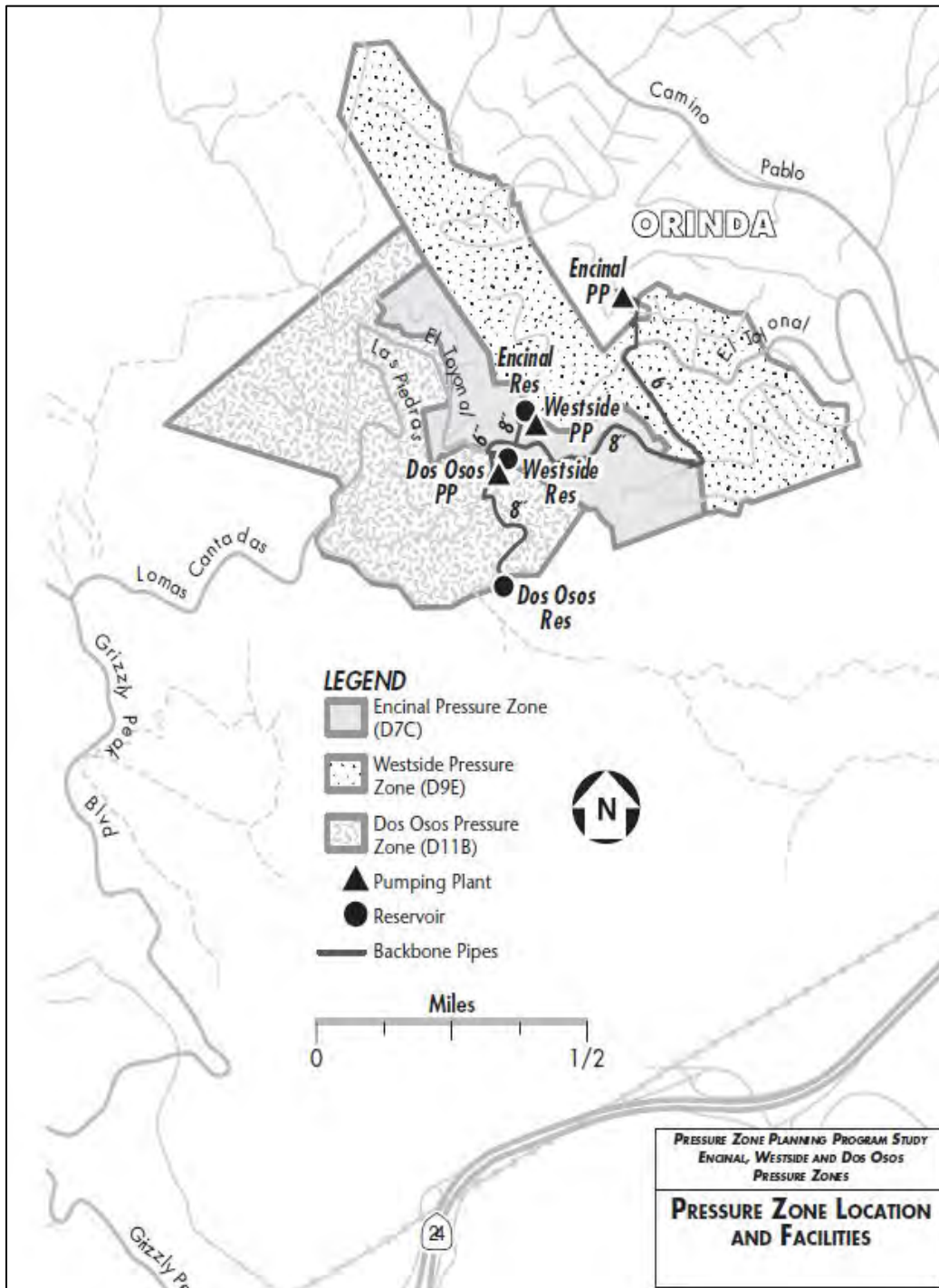
### **PROJECT DESCRIPTION**

#### **2.1. Overview**

The Dos Osos Pressure Zone provides water service to customers located between elevations of 1,050 feet and 1,250 feet in the Orinda hills above the Caldecott Tunnel in the City of Orinda, California (Figure 2.1). The Dos Osos Pumping Plant and Dos Osos Reservoir supply water to the Dos Osos Pressure Zone, which extends along El Toyonal, Camino Del Monte, and Las Piedras from Loma Vista Drive in the south to Chaparral Place in the north.

The Dos Osos Pressure Zone is part of the Encinal Cascade which consists of the Encinal Pressure Zone, Westside Pressure Zone and Dos Osos Pressure Zone and lies within the City of Orinda consisting of single-family residential homes on a hilly terrain with moderate to heavy vegetation. Water is supplied to the Encinal Cascade from the Bryant Pressure Zone where water is pumped to the Encinal Reservoir from the Encinal Pumping Plant and then pumped from the Westside Pumping Plant to the Westside Reservoir and then pumped to the Dos Osos Reservoir from the Dos Osos Pumping Plant. The Dos Osos Pressure Zone is at the top of the Encinal Cascade and encompasses the highest elevations of the cascade.





Pressure Zone Location and Facilities  
Figure 2.1

Located at 8 Los Norrabos in the City of Orinda, the existing steel-welded Dos Osos Reservoir was built in 1955 and has an operating capacity of 0.24 MG. A comprehensive fire flow study for the City of Orinda (EBMUD, 1999) determined that the Dos Osos Reservoir is located too low in elevation resulting in low-pressure areas along Alta Vista and Lomas Cantadas and should be replaced at a higher elevation. In addition, the reservoir interior and exterior require recoating, and the existing wood roof is deteriorating and requires full replacement.

The existing 0.24-MG Dos Osos Reservoir will be replaced with dual 0.12-MG steel-bolted reservoirs to be located on EBMUD-owned watershed property approximately 70 feet higher in elevation, 300 feet southwest of the existing Dos Osos Reservoir site. A new, 12-inch inlet-outlet pipeline will be constructed to connect the existing water distribution system to the new dual reservoirs and will be located within an approximately 800-foot-long permanent access road that will be constructed from Los Norrabos to the new dual reservoirs. High water age, due to low demand and excess storage, has led to low chlorine residuals in the existing reservoir. Each proposed reservoir will have a remote actuated isolation valve, which will allow for dual tank operation (isolating reservoirs to allow one reservoir to be in use while the second reservoir is offline) to improve reservoir turnover while maintaining fire flow storage.

EBMUD's existing Dos Osos Pumping Plant, located at 263 El Toyonal, Orinda, is a 0.3 MGD pumping plant. The Dos Osos Pumping Plant is a critical facility and is the only source of water for the Dos Osos Pressure Zone. The existing Dos Osos Pumping Plant will be rehabilitated at the same capacity; however, the Dos Osos Pumping Plant will be upgraded with pump units that can pump to a higher TDH to the new dual Dos Osos Reservoirs located approximately 70 feet higher in elevation.

Figure 1.2 shows a project vicinity map, including the existing Dos Osos Reservoir, the new dual Dos Osos Reservoirs' location, and the existing Dos Osos Pumping Plant.

Upon construction completion and successful testing (water quality and operations inspections) of the new facilities, the existing Dos Osos Reservoir, including the valve pit and foundation, will be demolished.

Also, the existing below-ground air valve at Alta Vista and Lomas Cantadas in the Dos Osos Pressure Zone will be replaced with an above-ground slow-venting air valve as part of surge-protection measures in the Dos Osos Pressure Zone.

## **2.2. Reservoir and Pumping Plant Deficiencies**

The Dos Osos Pressure Zone is served by the steel-welded Dos Osos Reservoir (Figure 2.2), which is supplied by the Westside Pressure Zone through the Dos Osos Pumping Plant. The Dos Osos Reservoir is located at the end of Los Norrabos. Constructed in 1955, the Dos Osos Reservoir is approximately 38 feet in diameter and 32 feet high and has an operating capacity of 0.24 MG. The deficiencies of the existing Dos Osos Reservoir include:

- The reservoir is over 60 years old and near the end of its useful life.
- The reservoir is located too low in elevation resulting in low-pressure areas along Alta Vista and Lomas Cantadas.
- High water age, due to low demand, excess storage, and poor water turnover, has led to low chlorine residuals increasing water quality operations.
- During winter demands, the Dos Osos Reservoir is approximately eight times larger than needed, which leads to water quality operational challenges.
- The wooden roof requires replacement, including the wooden and steel roof frame.
- The ladder leading to the roof requires replacement with stairs.
- The tank shell was last recoated in 1997 and requires recoating due to its age and condition.



**Existing Dos Osos Steel-Welded Reservoir at  
8 Los Norrabos in Orinda**

**Figure 2.2**

The existing Dos Osos Pumping Plant is a 0.3 MGD pumping plant (Figure 2.3), constructed in 1968, containing two vertical turbine pump units, both installed in 1968. The Dos Osos Pumping Plant is on the same site as the Westside Reservoir, a steel-bolted tank replaced in 2005. In 2004, a permanent backup regulator (two 2-inch and one 6-inch valves) supplied from the Dos Osos Pressure Zone was installed inside the Dos Osos Pumping Plant to supply the Westside Pressure Zone during the adjacent Westside Reservoir replacement. The backup regulator was closed in 2005 after the Westside Reservoir replacement was completed.

Since the new Dos Osos Reservoirs will be located at a higher elevation, the Dos Osos Pumping Plant units need to be upgraded to accommodate a higher TDH to pump water to the new dual reservoirs. The new pump units will be housed within the existing Dos Osos Pumping Plant building.

The mechanical and electrical equipment within the Dos Osos Pumping Plant is 49 years old and has exceeded its useful life. The deficiencies of the existing Dos Osos Pumping Plant equipment include:

- Inefficient pumps.
- The switchboard and motor control center were installed in 1968; they are obsolete and have no spare parts available.
- Spare parts are difficult to find or non-existent due to the age of the pumping plant equipment.

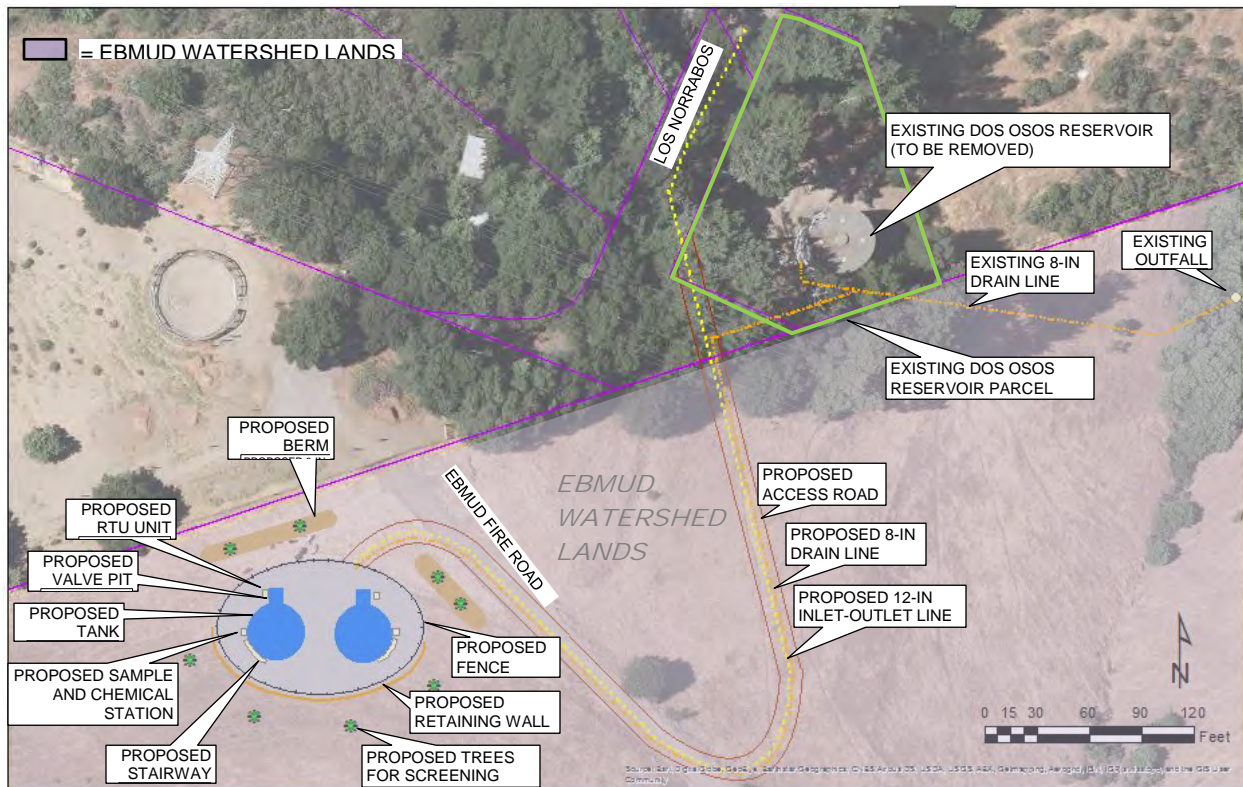


**Existing Dos Osos Pumping Plant at 263 El Toyonal in Orinda**  
**Figure 2.3**

### 2.3. Proposed Project

#### New Dos Osos Dual Reservoirs

To address the reservoir deficiencies noted above, the existing reservoir will be replaced with dual 0.12-MG steel-bolted reservoirs to increase storage turnover (and decrease water age) and to increase operational flexibility. To improve level of service to existing customers, the dual reservoirs will be constructed approximately 70 feet higher in elevation on adjacent EBMUD-owned watershed lands, the Siesta Valley Recreation Area, to provide increased water pressures to the Dos Osos Pressure Zone. The proposed dual reservoirs will be located near the northern boundary of the EBMUD watershed lands parcel, approximately 300 feet southwest of the existing Dos Osos Reservoir. The proposed Project site is located near the intersection of two private roads, Los Norrabos and Tres Mesas, and an EBMUD fire road to the watershed lands. Figure 2.4 shows a conceptual plan depicting major project components at the new dual reservoirs site.



**Conceptual Site Plan for Major Improvements at Proposed Dual Reservoirs Site**

**Figure 2.4**

Each new dual steel-bolted reservoir will be approximately 21 feet high with a diameter of about 33 feet and bottom and overflow elevations of approximately 1,399 and 1,420 feet, respectively. The dual reservoirs will be spaced approximately 15 feet apart for maintenance access. Each reservoir will be equipped with an approximately 12-foot by 12-foot valve pit, sample and chemical station, cathodic protection panel (in valve pit), remote telemetry unit (RTU) panel

with associated ten-foot antennas on each roof, stairway and a 42-inch-high fall protection. Each proposed reservoir will have a remote actuated isolation valve, which will allow for dual tank operation (isolating reservoirs to allow one reservoir to be in use while the second reservoir is offline) to improve reservoir turnover while maintaining fire flow storage. The reservoirs will have aluminum dome roofs.

Siting of the proposed dual reservoirs requires excavation of approximately 2,000 cubic yards (CY) of native embankment. The footprint of the dual reservoir site is roughly 6,000 square feet, or 0.13 acres. An approximately 210-foot-long retaining wall will be constructed to retain the hillside behind the dual reservoirs. The retaining wall will have a maximum height of approximately 18 feet. An eight-foot-high, black-vinyl-coated security chain link fence and gate will enclose the dual reservoir site.

The new dual reservoirs will be sited with an orientation (southwest to northeast) that minimizes the reservoir surface area presented to long-distance views to the extent practical – the intent being that only one tank may be visible from afar due to dual tank alignment. The new dual reservoirs' exteriors and roofs will be painted green to blend into the hillside. The proposed excavation will situate the new dual reservoirs into the hillside, resulting in the new dual reservoirs being recessed in, and not protruding from, the hillside. The retaining wall surface will also be designed to minimize contrast with the surrounding hillside.

To provide year-round access to the proposed reservoir location, an approximately 800-foot-long, asphalt concrete access road (with a maximum slope of about 15 percent) will be constructed starting at the private Los Norrabos roadway, continuing uphill from the existing Dos Osos Reservoir entrance. At approximately 100 feet upslope of the existing reservoir entrance, the new access road will turn south just past the Dos Osos Reservoir parcel line to enter EBMUD watershed lands. Once inside watershed lands, the access road will continue southerly upslope before switching back to meet the existing EBMUD fire road where it will follow the fire road for approximately 260 feet before reaching the proposed dual reservoirs site. The access road will be constructed so stormwater runoff will drain to surrounding vegetated hillslopes and infiltrate into native soils. Approximately five trees will need to be removed for the construction of the new access road.

An estimated 800 feet of 12-inch pipeline will connect the dual reservoirs to the existing pipeline in Los Norrabos within the new access road alignment. A new eight-inch overflow pipeline will also run from the dual reservoirs along the access road alignment for approximately 700 feet before turning northeast for 50 feet to connect to the existing Dos Osos Reservoir eight-inch overflow pipeline. The proposed overflow pipeline will connect to the existing Dos Osos Reservoir overflow pipeline at approximately 250 feet above the existing outfall.

Two earthen berms will be constructed to screen the dual reservoirs from the northeastern and northwestern vantage points. The two proposed earthen berms will be a) north of the proposed dual reservoirs site, parallel to the parcel perimeter, to screen views from properties to the north; and b) northeast of the proposed dual reservoirs site, between the new dual reservoirs and the existing fire access road, parallel to the fire access road, to screen long-distance views from

residences on Los Norrabos and viewpoints east of Camino Pablo in the City of Orinda. The berms and the area upslope of the retaining wall will be planted with native trees for screening.

### **Existing Dos Osos Pumping Plant Rehabilitation**

The existing 0.3 MGD Dos Osos Pumping Plant will be rehabilitated at the same capacity; however, the existing 15 HP vertical turbine pumps will be upgraded with pump units that can pump to a higher TDH to the new dual Dos Osos Reservoirs located approximately 70 feet higher in elevation. All electrical and mechanical upgrades to the pumping plant will take place within the existing pumping plant structure. A new antenna for the RTU will be installed on the pumping plant roof (approximately ten feet higher above the existing roof elevation). An electric portable pump with an acoustic enclosure will be temporarily installed at the Dos Osos Pumping Plant site during the rehabilitation and outage of the Dos Osos Pumping Plant. The weatherproof enclosure will measure approximately six feet wide by nine feet long by six feet high and will be located near the existing pumping plant.

The existing backup six-inch pressure-regulating valve inside the Dos Osos Pumping Plant structure will be opened and put into service. This pressure-regulating valve or regulator (known as the Westside Regulator) will be a dedicated emergency valve to provide fire flow to the lower Westside Pressure Zone from the new dual Dos Osos Reservoirs. Figure 2.5 shows the location of the existing Dos Osos Pumping Plant in relation to the proposed dual reservoirs site.



**Aerial Photo View of Major Dos Osos Reservoir Replacement Project Components**  
**Figure 2.5**



## **Existing Dos Osos Reservoir Demolition**

The existing 0.24-MG Dos Osos Reservoir, located at 8 Los Norrabos, will be demolished upon completion of construction and successful testing of the new dual Dos Osos Reservoirs and Dos Osos Pumping Plant. All steel, roofing, stairs, concrete vaults, concrete foundations, electrical, and mechanical equipment will be removed from the site. Upon completion of all demolition work, the valve pit will be backfilled, and the site will be graded and compacted.

## **Air Valve Replacement**

A hydraulic transient analysis for the Encinal Cascade (EBMUD, 2015) concluded that installation of surge-protection devices throughout the Encinal Cascade network was necessary to protect portions of the Encinal Cascade and its supply pressure zone, Bryant Pressure Zone, from pipe failure and fatigue due to high pressures following an uncontrolled pump shutdown. Within the Dos Osos Pressure Zone, the results show that the initial downsurge could cause cavitation at critical high elevations near the intersection of Alta Vista and Lomas Cantadas in the Dos Osos Pressure Zone. An existing 0.75-inch below-ground air valve exists at this location (Figure 2.6). Because the transient analysis has identified this as a critical location, this air valve will be replaced with an above-ground, 0.75-inch, slow-venting air valve to reliably prevent cavitation.



**Existing 0.75-Inch Air Valve at the Intersection of Alta Vista and Lomas Cantadas within the Dos Osos Pressure Zone in Orinda**

**Figure 2.6**

## **EBMUD Practices and Procedures**

EBMUD has incorporated a number of standard construction specifications, standard practices from EBMUD's Environmental Compliance Manual, and Engineering Standard Practices into

the Project. These standard specifications and standard practices are designed to address typical characteristics of EBMUD construction projects and are not project-specific or tailored to the unique characteristics of the Project. These standard specifications and standard practices, which are applicable to all EBMUD projects and reflect generally applicable EBMUD standard operating procedures, are described in more detail below.

EBMUD maintains several Standard Construction Specification documents specifically related to environmental conditions, including:

- 00 31 21.13, Site Survey Information – This section requires the Contractor to provide documentation of both pre- and post-construction pavement conditions in the project vicinity and includes provisions for long-term transportation safety.
- 01 14 11, Work Restrictions– This section describes special requirements and construction constraints (including work hours) that may affect Project construction.
- 01 35 24, Project Safety Requirements – This section includes provisions for the safety of the public and construction workers regarding hazards and hazardous materials.
- 01 35 44, Environmental Requirements – This section includes provisions related to water quality, dust and emissions control, noise and vibration control, hazardous materials control, and protection of biological and cultural resources.
- 01 55 26, Traffic Regulation – This section includes provisions for the regulation of traffic during construction and compliance with applicable traffic regulations requirements.
- 02 82 13, Asbestos Control Activities – This section includes requirements for the handling, removal, and proper disposal of asbestos-containing materials, required as a result of construction activities, and includes provisions for hazardous materials controls.
- 02 83 13, Lead Hazard Control Activities – This section includes requirements for the handling, removal, and proper disposal of lead-containing materials, required as a result of construction activities, and includes provisions for hazardous materials controls.

Section 3.0, Water Quality Protection, and Section 9.0, Trench Spoils Field Management Practices, of EBMUD’s Environmental Compliance Manual include best management practices (BMPs) that have been incorporated into the Project including provisions regarding liquid discharges and trench spoils management.

EBMUD Procedure 711, Hazardous Waste Removal, defines hazardous waste and establishes responsibilities for removal of hazardous wastes from EBMUD facilities. This procedure outlines specific steps and responsibilities for: characterizing the waste and determining what analyses are needed to classify the waste; coordinating waste disposal, reuse, or recycling issues; labeling, storing, inspecting, and maintaining inventory records for the waste; and reviewing, signing, and

tracking any hazardous waste handling and disposal requirements and hazardous waste manifests.

EBMUD's Engineering Standard Practice 512.1, Water Main and Services Design Criteria, and Engineering Standard Practice 550.1, Seismic Design Requirements, dictate basic requirements for water pipelines and design standards for pipelines to withstand seismic hazards.

EBMUD's Reservoir Design Guide (2014) establishes minimum requirements to be followed in the design of EBMUD drinking water reservoirs. This guide details design criteria and conditions for above- and below-ground water reservoirs and outlines applicable codes and design standards.

Appendix B contains the table, EBMUD Practices and Procedures Monitoring and Reporting Plan. This table and discussion in the Initial Study detail these practices and procedures and describe their relationship to Project impacts.

## **2.4. Environmental Setting**

The Dos Osos Pressure Zone is located in a hilly region of Orinda above the Caldecott Tunnel at the highest elevation of the El Toyonal neighborhood. It is populated with "semi-rural," low-density, single-family housing and bounded to the south by the open space watershed lands of EBMUD, known as the Siesta Valley Recreation Area. The watershed lands parcel, approximately 980 acres of open space, is roughly bounded by Camino Pablo (east), Grizzly Peak Boulevard and Fish Ranch Road (west), the El Toyonal neighborhood (north) and Highway 24 (south).

The new dual Dos Osos Reservoirs will be located at the northern perimeter of the watershed lands, about 100 feet south of the intersection of two private roads, Los Norrabos and Tres Mesas, which meet just outside the perimeter of the watershed lands. An EBMUD fire access road also exits the watershed lands at this location. The dual reservoirs site will be graded into the hillslopes that face northeast. In contrast to the wooded El Toyonal neighborhood, the watershed lands are open, hilly, grazed annual grassland.

The existing Dos Osos Reservoir is located about 300 feet directly northeast of the proposed reservoirs site on a 0.38-acre parcel at 8 Los Norrabos, roughly 70 feet lower in elevation. The existing reservoir site is surrounded by low-density residential lots and two adjacent vacant irregularly shaped parcels situated on steep slopes. The existing reservoir site and neighboring parcels are heavily canopied by native trees, including coastal live oaks and California bay trees. The existing reservoir is located at the margin of the coast live oak woodland and the annual grassland of the watershed lands.

The existing Dos Osos Pumping Plant site is located approximately 0.6 miles from the existing Dos Osos Reservoir on a 0.5-acre parcel at 263 El Toyonal in the El Toyonal neighborhood of the City of Orinda surrounded by low-density, single-family residences. The Dos Osos Pumping Plant building shares the site with EBMUD's Westside Reservoir, a 0.3 MG, steel-bolted reservoir constructed in 2005. Access to the Dos Osos Pumping Plant is off of El Toyonal at its

intersection with Alta Vista, which is also the only access to the residence at 263 El Toyonal which lies roughly 100 feet beyond the pumping plant along the driveway.

## **2.5. Construction Characteristics**

**2.5.1. Construction Access** – Construction access routes to both the existing and proposed Dos Osos Reservoir sites and the Dos Osos Pumping Plant will be from Highway 24; from the west via Grizzly Peak Boulevard; or, from the east via Camino Pablo.

**2.5.2. Construction Equipment** – Equipment anticipated to be used during the Project construction and demolition include: backhoes, excavators, hoe rams, jack hammers, bulldozers, front-end loaders, fork lifts, flatbed delivery trucks, asphalt pavers, vibratory compactors, rollers, street sweeper, water trucks, shotcrete and concrete trucks, high lift crane, various passenger vehicles, electric portable pumps, and truck-mounted equipment for soil nail installation and welding of pipelines. Construction activity, duration, and resulting vehicle trips are listed in Table 2.1.

**2.5.3. Staging Area** – During the dual reservoirs construction phase, equipment and materials would be staged within the existing reservoir site at 8 Los Norrabos, an EBMUD-owned parcel. As EBMUD watershed lands are graded for the dual reservoirs site, staging may shift to watershed lands as work progresses. All staging during the existing reservoir demolition phase would occur within the existing reservoir parcel.

During the Dos Osos Pumping Plant rehabilitation phase, equipment and materials would be staged onsite at the EBMUD-owned parcel at 263 El Toyonal.

**2.5.4. Work Hours** – Typical construction hours would occur between 8:00 a.m. and 6:00 p.m., Monday through Friday, with an exception for emergencies. Trucks and personnel can arrive at the site for reporting, minor tasks, and meetings after 7:00 a.m., but construction activity that generates excessive noise would not commence until 8:00 a.m. to prevent disruption to residents on Los Norrabos and El Toyonal. Haul trucks would be allowed on the roadways between 9:00 a.m. and 4:00 p.m. to minimize traffic impacts during peak commute hours. A typical eight-hour workday between Monday and Friday serves as the basis of estimated construction durations in this MND.

**TABLE 2.1**  
**Construction Activities Associated with Dos Osos Reservoir Replacement Project\***

Construction Phase	Approx. Duration (weeks)	Major Equipment	Haul/ Material Trucks (per day)	Max Hourly One-Way Trips	
				Worker Vehicles	Trucks
<b>Dual Reservoirs Site Excavation</b>					
Mobilization	1	Excavator, Flatbed Trailer, Backhoe, Haul Trucks	2	3	1
Tree Removal	1	Crane, Backhoe, Haul Trucks, Chain Saws	2	8	1
Access Road Grading	2	Excavator, Backhoe, Front-End Loader, Haul Trucks	28	8	8
Reservoir Site Grading	3	Excavator, Backhoe, Front-End Loader, Haul Trucks	28	8	8
Reservoir Foundation and Vault Pit Excavation	1	Excavator, Backhoe, Front-End Loader, Haul Trucks	28	6	8
<b>Dual Reservoirs Site Retaining Wall</b>					
Mobilization: Temporary Shoring	1	Excavator, Crane	2	10	1
Soil Nails	1	Track-mounted Drill Rig, Concrete Pump, Excavator	2	8	1
Shotcrete	1	Excavator, Backhoe, Forklift, Concrete and Shotcrete Trucks	28	6	8
Retaining Wall Drainage	1	Excavator, Front-End Loader, Flatbed Trailer	2	6	1
Cast-In-Place Concrete	1	Excavator, Backhoe, Forklift, Concrete and Shotcrete Trucks	28	8	8
<b>Dual Reservoirs Construction</b>					
Material/Equipment Submittals, Fabrication and Procurement	12				
Reservoir Concrete Foundations	1	Excavator, Backhoe, Forklift, Concrete and Shotcrete Trucks	28	8	8
Reservoir Steel-Bolted Shells	1	Crane, Excavator, Backhoe, Loader, Forklift, Material Trucks	2	8	1
Reservoir Roofs	1	Crane, Excavator, Backhoe, Loader, Forklift, Material Trucks	2	8	1
Reservoir Appurtenances	2	Crane, Excavator, Backhoe, Loader, Forklift, Material Trucks	2	8	1
Valve Pits and Appurtenances	1	Crane, Excavator, Backhoe, Loader, Forklift, Material Trucks	28	8	8
Inlet-Outlet Line and Miscellaneous Piping	1	Crane, Excavator, Backhoe, Loader, Forklift, Material Trucks	28	6	8
Overflow and Drain Lines	1	Crane, Excavator, Backhoe, Loader, Forklift, Material Trucks	28	6	8
Asphalt Paving	3	Rollers, Asphalt Paver, Compactor	5	6	2
Site Restoration	1	Excavator, Front-End Loader, Backhoe, Street Sweeper	0	5	0
Reservoir Testing	4		0	4	0

Construction Phase	Approx. Duration (weeks)	Major Equipment	Haul/ Material Trucks (per day)	Max Hourly One-Way Trips Worker	
				Vehicles	Trucks
<b>New Reservoir Site Landscaping and Security</b>					
Berms	3	Excavator, Front-End Loader, Backhoe, Soil Compactor	0	6	0
Landscaping	1	Excavator, Front-End Loader, Material Trucks	2	6	1
Fencing and Gates	1	Forklift	4	3	2
<b>Existing Dos Osos Pumping Plant Rehab</b>					
Material/Equipment Submittals, Fabrication and Procurement	12				
Install Temporary Portable Pump	1	Crane, Forklift, Flatbed Trailer	2	4	1
Remove/Demolish Pumping Plant Equipment	1	Crane, Haul Trucks, Forklift	2	5	1
Install Pumping Plant Equipment	1	Crane, Forklift, Flatbed Trailer	2	5	1
Site Restoration	1	Street Sweeper	0	3	0
Pumping Plant Equipment Testing	10		0	3	0
<b>Existing Dos Osos Steel-Tank Demolition</b>					
Drain Reservoir	1	Water Hog Truck	0	3	0
Demolish/Remove Steel Reservoir Roof, Shell and Appurtenances	2	Crane, Excavator, Chain Saw, Haul Truck	2	5	1
Demolish/Remove Reservoir Foundation and Valve Pit	1	Excavator, Backhoe, Loader, Hoe Ram, Jackhammer, Haul Truck	2	5	1
Backfill Site	1	Excavator, Front-End Loader, Roller, Compactor, Haul Truck	2	4	1
<b>Total Duration (weeks)</b>	<b>77</b>				
<b>MAXIMUM ONE-WAY TRIPS PER HOUR =</b>				<b>10</b>	<b>8</b>
				<b>Vehicles</b>	<b>Trucks</b>

**\*Notes**

1. Work schedule: eight-hour workday (typical construction hours, Monday-Friday between 8:00 a.m. and 6:00 p.m.)
2. Daily "Haul/Material Trucks" quantities are doubled to calculate daily one-way truck trips. Daily one-way truck/vehicle trips account for trucks/vehicles going to and leaving the Project site on a daily basis.
3. Maximum hourly one-way truck trips are estimated by averaging the number of trucks going to and leaving the job site on a daily basis over a seven-hour period (9:00 a.m. to 4:00 p.m.).
4. Maximum hourly one-way vehicle trips are estimated by assuming all workers are arriving and leaving the job site in a one-hour period expected to occur during a.m. and p.m. peak commute hours.
5. Haul trucks average nine cubic yards (CY) per load; concrete trucks average nine CY per load.
6. Excavation is about 5,400 CY. Backfill is about 400 CY. Assume all required backfill amounts will be obtained from excavated quantities stockpiled on site.
7. Assume that all excess soil excavation will be off-hauled.
8. One worker per vehicle.

## **2.6. Project Schedule and Cost**

The EBMUD Board of Directors will consider adoption and approval of this MND at a regularly scheduled meeting in August 2017. Reservoir and pumping plant design will take about one year followed by solicitation of bids from contractors. Construction is estimated to take about 18 to 24 months, beginning in 2023. The planning-level cost estimate is about \$6 million and includes planning, design, construction, construction management, and inspection costs.

## **CHAPTER 3**

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### **ENVIRONMENTAL ANALYSIS**

#### **3.1. Project Information**

1. Project Title: Dos Osos Reservoir Replacement Project
2. Lead Agency Name and Address: East Bay Municipal Utility District  
Water Distribution Planning Division – MS 701  
375 11th Street  
Oakland, CA 94607
3. Contact Person: Chien Wang, Associate Civil Engineer  
(510) 287-1086
4. Project Location: New dual Dos Osos Reservoirs to be located on EBMUD-owned watershed land in unincorporated Contra Costa County immediately contiguous to City of Orinda boundary just south of the intersection of private roads Tres Mesas and Los Norrabos, Orinda, CA, roughly 300 feet southwest of the existing Dos Osos Reservoir. A new, 12-inch inlet-outlet pipeline and new eight-inch overflow pipeline will be constructed for the new dual reservoirs to be located in an approximately 800-foot-long permanent access road that will be constructed from Los Norrabos to the new dual reservoirs.  
  
Existing Dos Osos Reservoir located at 8 Los Norrabos, Orinda, CA.  
  
Existing Dos Osos Pumping Plant located at 263 El Toyonal, Orinda, CA.  
  
Existing air valve at Alta Vista and Lomas Cantadas, Orinda, CA will be replaced with an above-ground, slow-venting air valve to mitigate potential cavitation.
5. Project Sponsor’s Name and Address: East Bay Municipal Utility District  
Water Distribution Planning Division – MS 701  
375 11<sup>th</sup> Street  
Oakland, CA 94607
6. General Plan Designation: Dos Osos Pumping Plant and existing Dos Osos Reservoir: City of Orinda – Residential: Low Density  
  
New dual Dos Osos Reservoirs: Contra Costa County – Watershed
7. Zoning: Dos Osos Pumping Plant and existing Dos Osos Reservoir:  
RL-20: Residential Low Density – 20,000 square feet



*Mitigated Negative Declaration*  
*Dos Osos Reservoir Replacement Project*

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8. Description of Project: Please see Chapter 2 of the MND.
9. Surrounding Land Uses and Setting: All parcels surrounding the Dos Osos Pumping Plant and existing Dos Osos Reservoir sites are residential, zoned RL-20, Residential Low Density – 20,000 square feet. The Siesta Valley Recreation Area, watershed land owned by EBMUD, is managed as open space, primarily as protection for water quality.
10. Other Public Agencies Whose Approval is Required:
- i) U.S. Fish & Wildlife Service
  - ii) California Department of Fish & Wildlife

**3.2. Environmental Factors Potentially Affected**

The environmental factors checked below could potentially be affected by this Project, but impacts would be mitigated to a less than significant level as indicated by the checklists on the following pages.

<input type="checkbox"/>	Aesthetics	<input type="checkbox"/>	Agriculture and Forestry Resources	<input type="checkbox"/>	Air Quality
<input checked="" type="checkbox"/>	Biological Resources	<input type="checkbox"/>	Cultural Resources	<input checked="" type="checkbox"/>	Geology/Soils
<input type="checkbox"/>	Greenhouse Gas Emissions	<input type="checkbox"/>	Hazards/Hazardous Materials	<input type="checkbox"/>	Hydrology/Water Quality
<input type="checkbox"/>	Land Use/Planning	<input type="checkbox"/>	Mineral Resources	<input type="checkbox"/>	Noise
<input type="checkbox"/>	Population/Housing	<input type="checkbox"/>	Public Services	<input type="checkbox"/>	Recreation
<input type="checkbox"/>	Transportation/Traffic	<input type="checkbox"/>	Utilities/Service Systems	<input checked="" type="checkbox"/>	Mandatory Findings of Significance

**3.3. Environmental 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 in the Project have been made by or agreed to by the applicant. A MITIGATED NEGATIVE DECLARATION will be prepared.
- I find that the proposed Project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- I find that the proposed Project MAY have a “potentially significant impact” or “potentially significant unless mitigated” on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- I find that, although the proposed Project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier Environmental Impact Report pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier Environmental Impact Report, including revisions or mitigation measures that are imposed upon the proposed Project, nothing further is required.

  
Xavier J. Irias, Director of Engineering and Construction

5-18-2017  
Date

### **3.4. Evaluation of Environmental Impacts and Initial Study Checklist**

- 1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
- 2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
- 3) Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.
- 4) "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures and briefly explain how they reduce the effect to a less than significant level (mitigation measures from "Earlier Analyses," as described in (5) below, may be cross-referenced).
- 5) Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D) (2017 CEQA Guidelines). In this case, a brief discussion should identify the following:
  - a. Earlier Analysis Used. Identify and state where they are available for review.
  - b. Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards and state whether such effects were addressed by mitigation measures based on the earlier analysis.
  - c. Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

- 6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.
- 7) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.
- 8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.
- 9) The explanation of each issue should identify:
  - a. The significance criteria or threshold, if any, used to evaluate each question.
  - b. The mitigation measure identified, if any, to reduce the impact to less than significant.

**ENVIRONMENTAL IMPACT CHECKLIST**

**I. Aesthetics**

<b>Would the Project:</b>	<b>Potentially Significant Impact</b>	<b>Less than Significant with Mitigation Incorporated</b>	<b>Less than Significant Impact</b>	<b>No Impact</b>
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially damage scenic resources, including but not limited to, trees, rock outcropping, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**DISCUSSION**

The proposed rehabilitation of the existing Dos Osos Pumping Plant located at 263 El Toyonal consists of replacing existing pump units with new units within the existing pumping plant structure. As such, long-term aesthetic conditions will not change relative to existing conditions. A temporary, electric portable pump will be housed within a weatherproof enclosure (approximately six feet wide by nine feet long by six feet high) to be located near the existing pumping plant. Proposed pumping plant rehabilitation short- and long-term activities will not affect a scenic vista, do not damage any scenic resources within a state scenic highway, will not

degrade the existing visual character of the site and its surroundings, or create a new source of substantial light or glare.

The proposed demolition of the existing Dos Osos Reservoir will result in the complete removal of all existing facilities from the site at 8 Los Norrabos, thereby leaving the site in a more natural state. As such, no impacts to aesthetics will occur at the site of the existing Dos Osos Reservoir.

Discussion of individual potential impacts below focuses on the new dual Dos Osos Reservoirs site on EBMUD watershed lands.

- a. Less than Significant Impact.** The existing Dos Osos Reservoir site and a portion of the new access road lie within a “ridgeline” designation of the Ridgeline and Environmental Preservation Overlay District (City of Orinda General Plan [1987], City of Orinda Title 17 Zoning Ordinance, Chapter 17.5, Ridgeline and Environmental Preservation Overlay District). Identified as an area of great visual importance to the City of Orinda, the ridgeline may be considered a designated scenic vista.

To provide year-round access to the proposed dual reservoirs location, an approximately 800-foot-long asphalt concrete access road (with a maximum slope of approximately 15 percent) will be constructed starting at the private Los Norrabos roadway and continuing uphill from the existing Dos Osos Reservoir parcel. Approximately five trees will need to be removed for the construction of the new access road; however, mature trees on site will be protected and preserved to the extent possible as part of the Project.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 35 44, Environmental Requirements. Section 3.7, Protection of Native and Non-Native Protected Trees, of this standard construction specification includes best practices for protecting trees that are not to be removed within the Project construction limits, including:

- Construction drawings will show locations of trees to be removed and protected.
- Pruning shall adhere to the Tree Pruning Guidelines of the International Society of Arboriculture.
- Exclusion fencing shall be erected around trees to be protected.
- No grading, construction, demolition, trenching for irrigation, planting or other work shall occur within the tree protection zone established by the exclusion fencing.
- Any tree injured during construction shall be evaluated as soon as possible by a certified arborist provided by EBMUD and replaced as deemed necessary by the certified arborist.

The Project includes the construction of earthen berms a) north of the proposed dual reservoirs site, parallel to the parcel perimeter; and b) northeast of the proposed dual reservoirs site, between the new dual reservoirs and the existing fire access road, parallel to the fire access road. The earthen berms will be planted with trees that will provide screening

around the dual reservoirs and will protect views from the north and from residences on Los Norrabos and viewpoints east of Camino Pablo in the City of Orinda.

Because Section 3.7, Protection of Native and Non-Native Protected Trees, of EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, has been incorporated into the Project, and includes provisions for tree protection BMPs, and because earthen berms and planted trees around the dual reservoirs and tree protection measures have been incorporated into the Project, which would screen the new dual reservoirs and protect existing trees, Project impacts related to effects on a scenic vista are less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

- b. No Impact.** None of the Project sites are located within a state scenic highway. The Project sites are not visible from California State Highway 24, a designated state scenic highway.
- c. Less than Significant Impact.** The following discussion is based upon field assessments of the viewpoints of the new dual Dos Osos Reservoirs from primary vantage points, at short- and long-distance views.

With locating the new dual Dos Osos Reservoirs to a higher elevation to eliminate existing pressure deficiencies, there is a possibility for the Project to cause aesthetic impacts on the Project site and in the surrounding area. However, due to the remote location of the new dual reservoirs site at the dead end of two private roads in the hills of Orinda, the volume of daily foot and vehicle traffic is low, so the number of potential views at close proximity would be low.

The closest residences are located at 9 Los Norrabos, approximately 340 feet from the dual reservoirs site to the northeast, and 77 Tres Mesas, approximately 700 feet from the site to the northwest. Both residences do not have clear views of the new dual reservoirs site, because they are approximately 50 feet lower in elevation, and views to the new dual reservoirs are further obscured by existing trees that will remain after the Project is completed. However, from the north, an existing horse corral at the top of Tres Mesas has a direct line of sight to the new dual reservoirs site. The residence at 100 Tres Mesas, approximately 2,000 feet higher in elevation and 1,000 feet southwest of the dual reservoirs site, situated off of Tres Mesas roadway at the border between the City of Orinda and EBMUD watershed property, also has a direct line of sight to the new dual reservoirs site.

From farther away to the northwest, residences at 263 and 62 Lomas Cantadas (approximately 100 feet higher in elevation) have partially obscured views of the new dual reservoirs site from roughly 1,500 feet away. These views are obscured by existing trees that will remain after the Project is completed. From the east, residences east of Camino Pablo, greater than a mile away, at 623 and 627 Watchwood Road have indistinct long-distance views of the new dual reservoirs site.

However, as detailed in the Project Description, the new dual reservoirs' orientation, exterior colors, and excavation into the hillslope below existing grades will screen the new dual

reservoirs from short- and long-distance views. Also, the Project includes construction of earthen berms and the planting of trees that will screen the new dual reservoirs from short- and long-distance views. Thus, the Project will not degrade the existing visual character or quality of the site, and the Project impacts are less than significant.

- d. No Impact.** The new dual reservoirs will not introduce new light sources or glare to the site.

**II. Agriculture and Forestry Resources**

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. 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:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220[g]) or timberland (as defined in Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51140 (g))	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**DISCUSSION**

- a. No Impact.** None of the Project sites are designated as prime Farmland, Unique Farmland, or Farmland of Statewide Importance. The existing Dos Osos Pumping Plant site and existing Dos Osos Reservoir site are located on low-density, residential-zoned areas within the City of



Orinda. The new dual Dos Osos Reservoirs site is located on watershed lands owned by EBMUD with open space and watershed management uses.

**b. No Impact.** None of the Project sites are currently zoned for agricultural use nor are any under a Williamson Act contract for agricultural preservation.

**c. No Impact.** None of the Project sites are currently zoned for forest land, timberland, or timberland zoned Timberland Production. The existing Dos Osos Pumping Plant site and existing Dos Osos Reservoir site are located on low-density, residential-zoned areas within the City of Orinda. The new dual Dos Osos Reservoirs site is located on watershed lands owned by EBMUD with open space and watershed management uses.

**d and e. No Impact.** None of the Project sites will involve changes that would result in loss of forest land or conversion of forest land to non-forest use, or conversion of Farmland to non-agricultural use. The Project sites do not occur on forest land or Farmland. The proposed removal of five trees for construction of the access road will not change the existing character of the dual reservoirs site, which is primarily grassland.

**III. Air Quality**

Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**DISCUSSION**

The air quality impact analysis considers both long-term operational and short-term construction impacts associated with the proposed Project. In June 2010, the Bay Area Air Quality Management District (BAAQMD) adopted thresholds of significance, to assist in the review of projects under CEQA, that were designed to establish the level at which BAAQMD air pollution

emissions would cause significant environmental impacts under CEQA. The thresholds were posted on BAAQMD's website and included in the 2011 CEQA Air Quality Guidelines (updated May 2011). EBMUD considers the 2011 BAAQMD significance thresholds adequate to provide a conservative evaluation of a project's potential air quality impacts.

BAAQMD is the regional agency responsible for air quality regulation within the San Francisco Bay Area Air Basin. BAAQMD regulates air quality through its planning and review activities. BAAQMD has permit authority over most types of stationary emission sources and can require stationary sources to obtain permits and can impose emission limits, set fuel or material specifications, or establish operational limits to reduce air emissions. BAAQMD regulates new or expanding stationary sources of toxic air contaminants.

- a. No Impact.** The BAAQMD Bay Area 2010 Clean Air Plan (2010 CAP) provides a comprehensive plan to improve Bay Area air quality and protect public health. The 2010 CAP defines a control strategy that BAAQMD and its partners will implement to: (1) reduce emissions and decrease ambient concentrations of harmful pollutants; (2) safeguard public health by reducing exposure to air pollutants that pose the greatest health risk, with an emphasis on protecting the communities most heavily impacted by air pollution; and (3) reduce greenhouse gas (GHG) emissions to protect the climate.

The Bay Area 2005 Ozone Strategy, prepared by BAAQMD, in cooperation with the Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments (ABAG), describes the Bay Area's strategy for compliance with California State one-hour ozone standard planning requirements and how the region will reduce transport of ozone and ozone precursors to neighboring air basins.

**Long-Term Operations:** The rehabilitated Dos Osos Pumping Plant will continue to be powered by electricity. Thus, the facility will not emit exhaust or fumes during operation of the pumps. There will be no emissions generated by the pumping plant. Also, there will be no emissions generated by the new dual reservoirs, because long-term reservoir operations require only electrical power sources. Therefore, pumping plant and reservoir operational impacts related to air quality plans from the proposed Project would have no impact.

**Short-Term Construction:** The Project would not conflict with the implementation of the 2010 CAP during the construction phase. General estimated basin-wide, construction-related emissions are included in BAAQMD emission inventory and are not expected to prevent attainment or maintenance of the ozone, particulate matter, and carbon monoxide levels within the Bay Area. Thus, short-term construction of the Project components would have no impact and would not conflict with or obstruct implementation of any applicable air quality plans.

- b. and c. Less than Significant Impact.** Federal and California state ambient air quality standards have been set to protect public health and the climate. "Attainment" status for a pollutant means that BAAQMD meets the standards set by the U.S. Environmental Protection Agency (federal) or California Environmental Protection Agency (state).

Generally, California state standards are more stringent than federal standards. Continuous air monitoring ensures that these standards are met and maintained.

Currently, as measured under both California state and federal standards, the Bay Area Air Basin has non-attainment status for particulate matter and ozone, though standards are exceeded only periodically.

#### Suspended and Inhalable Particulate Matter (PM10 and PM2.5)

Particulate matter is a class of air pollutants that consists of solid and liquid airborne particles in an extremely small size range. Particulate matter is measured in two size ranges: PM10 for particles less than 10 microns in diameter, and PM2.5 for particles less than 2.5 microns in diameter. Motor vehicles generate about half of Bay Area particulates through tailpipe emissions as well as brake pad and tire wear. Wood burning in fireplaces and stoves, industrial facilities, and ground-disturbing activities such as construction are other sources of fine particulates.

Diesel exhaust is a growing concern in the Bay Area and throughout California. The California Air Resources Board (CARB) identified diesel engine particulate matter as a toxic air contaminant. The exhaust from diesel engines includes hundreds of different gaseous and particulate components, many of which are toxic. Many of these toxic compounds adhere to the diesel particles, which are very small and can penetrate deeply into the lungs. Diesel engine particulate matter has been identified as a human carcinogen. Mobile sources such as trucks, buses, and automobiles are some of the primary sources of diesel emissions.

The Bay Area is designated as non-attainment for state standards for both PM10 and PM2.5 and is designated as non-attainment for the national 24-hour fine particulate matter (PM2.5) standard.

#### Ozone

Ozone is a secondary air pollutant produced in the atmosphere through a complex series of photochemical reactions involving reactive organic gases (ROG) and nitrogen oxides (NOx). The main sources of ROG and NOx, often referred to as ozone precursors, are combustion processes (including motor vehicle engines) and the evaporation of solvents, paints, and fuels. Automobiles are the single largest source of ozone precursors in the Bay Area. Ozone is a regional air pollutant, because its precursors are transported and diffused by wind concurrently with ozone production through the photochemical reaction process. Ozone causes eye irritation, airway constriction, and shortness of breath and can aggravate existing respiratory diseases such as asthma, bronchitis, and emphysema. The Bay Area region is designated as non-attainment for both the one-hour and eight-hour state ozone standards.

**Long-Term Operational Air Quality Impacts (No Impact)**. As stated above in Section a, above, there will be no emissions from the rehabilitated Dos Osos Pumping Plant or the new dual Dos Osos Reservoirs. Thus, pumping plant and reservoir operational impacts related to air quality standards from the proposed Project would have no impact.

**Short-Term Construction Air Quality Impacts (Less than Significant Impact).**

Construction activities are typically short-term or temporary in duration; however, Project-generated construction emissions could represent a significant impact with respect to air quality and/or global climate change.

Project construction activities can result in fugitive dust, which contributes to particulate matter levels. Sources of fugitive dust emissions could include construction-related activities such as soil disturbance, grading, and material hauling. Construction emissions of fugitive PM10 can vary greatly depending on the level of activity, the specific operations taking place, the equipment being operated, local soils, weather conditions, and other factors.

The Project will also result in short-term diesel- and gasoline-powered construction equipment emissions that contain organic gases and oxides of nitrogen, which are considered to be ozone precursors. Sources of exhaust emissions could include on-road haul trucks, delivery trucks, worker commuter motor vehicles, and off-road, heavy-duty equipment.

The BAAQMD 2011 CEQA Air Quality Guidelines include significance criteria for evaluating short-term, construction-phase emissions associated with projects. In accordance with BAAQMD 2011 CEQA Air Quality Guidelines, a project would have a significant construction-related impact if it would cause a new increase in pollutant emissions of ROG exceeding 54 pounds per day (lbs/day), NOx exceeding 54 lbs/day, PM10 exceeding 82 lbs/day, or PM2.5 exceeding 54 lbs/day. BAAQMD does not have a threshold of significance for fugitive dust impacts but instead regards fugitive dust impacts to be mitigated if appropriate management practices are implemented. For construction-phase impacts, BAAQMD recommends implementation of construction mitigation measures to mitigate construction impacts.

EBMUD's approach to the CEQA analyses of construction impacts for the Project is to emphasize implementation of effective and comprehensive control measures rather than detailed quantification of emissions. This is appropriate given the small scale of the Project and the limited number of estimated construction truck and vehicle trips (Table 2.1).

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 35 44, Environmental Requirements. This specification includes appropriate management practices (including all BAAQMD-recommended practices) that will be implemented as part of the Project.

Section 1.3E of EBMUD's Standard Construction Specification 01 35 44 requires a Dust Control and Monitoring Plan that details the means and methods for controlling and monitoring dust generated by demolition and other work on the site. The specification requires that the plan shall:

- Comply with all applicable regulations including, but not limited to, the BAAQMD Particulate Matter and Visible Emissions Regulation<sup>1</sup> and Public Nuisance Rule.<sup>2</sup>
- Outline BMPs for preventing dust emissions and provide guidelines for training of employees and procedures to be used during operations and maintenance activities.
- Detail the equipment and methods used to monitor compliance with the plan.

Implementation of Section 1.3E, Dust Control and Monitoring Plan, of Standard Construction Specification 01 35 44 ensures that dust generated by short-term construction activities will be monitored and controlled to minimize short-term construction dust emissions.

Section 1.3I of EBMUD's Standard Construction Specification 01 35 44 requires tuneup logs that provide records that show construction equipment in use at the Project sites has undergone required maintenance and requires:

- Submittal of a log of required tuneups for all construction equipment, particularly haul and delivery trucks, on a quarterly basis for review.

Implementation of Section 1.3I, Tuneup Logs, of Standard Construction Specification 01 35 44 ensures that construction equipment used at the Project site will be maintained regularly for efficient operation, reducing exhaust emissions to the environment.

Section 3.3B, of EBMUD's Standard Construction Specification 01 35 44 includes provisions for dust control and requires implementation of all necessary dust control measures, including, but not limited to:

- Water and/or coarse rock all dust-generating construction areas as directed by Engineer to reduce the potential for airborne dust from leaving the site.
- Cover all haul trucks entering/leaving the site and trim their loads as necessary.
- Use wet power vacuum street sweepers to:
  - Sweep all paved access roads, parking areas, and staging areas at the construction site daily or as often as necessary.
  - Sweep public roads adjacent to the site at least twice daily or as often as necessary.
- The use of dry power sweeping is prohibited.
- All trucks and equipment, including their tires, shall be washed off prior to leaving the site.
- Gravel or apply non-toxic soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites.
- Water and/or cover soil stockpiles daily.

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<sup>1</sup> BAAQMD Regulation 6, Particulate Matter and Visible Emissions, limits the quantity of particulate matter in the atmosphere through the establishment of limitations on emission rates, concentration, visible emissions and opacity.

<sup>2</sup> BAAQMD Regulation 1-301, Public Nuisance, limits air contaminants which cause a public nuisance to any considerable number of persons or the public.

- Site accesses to a distance of 100 feet from the paved road shall be treated with a 12-inch layer of compacted coarse rock.
- Sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways from sites with a slope greater than one percent.
- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible.
- Building pads shall be laid as soon as possible after grading.
- All vehicle speeds shall be limited to 15 miles per hour (mph) or less on the construction site and any adjacent unpaved roads.

Implementation of Section 3.3B, Dust Control, of Standard Construction Specification 01 35 44 ensures specified dust control BMPs will be implemented to minimize short-term construction dust emissions.

Section 3.4A of EBMUD's Standard Construction Specification 01 35 44 includes the following provisions for air quality and emissions control:

- The Contractor shall ensure that line power is used instead of diesel generators at all construction sites where line power is available.
- The Contractor shall ensure that for operation of any stationary, compression-ignition engines as part of construction, comply with Section 93115, Title 17, California Code of Regulations, Airborne Toxic Control Measure for Stationary Compression Ignition Engines, which specifies fuel and fuel additive requirements as well as emission standards.
- Fixed temporary sources of air emissions (such as portable pumps, compressors, generators, etc.) shall be electrically powered unless the Contractor submits documentation and receives approval from the Engineer that the use of such equipment is not practical, feasible, or available. All portable engines and equipment units used as part of construction shall be properly registered with CARB or otherwise permitted by the appropriate local air district, as required.
- Contractor shall implement standard air emission controls such as:
  - Minimize the use of diesel generators where possible.
  - Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes, as required by the California Airborne Toxic Control Measure (ATCM), Title 13, Section 2485 of California Code of Regulations. Clear signage shall be provided for construction workers at all access points.
  - Follow applicable regulations for fuel, fuel additives, and emission standards for stationary, diesel-fueled engines.
  - Locate generators at least 100 feet away from adjacent homes.
  - Perform regular low-emission tuneups on all construction equipment, particularly haul trucks and earthwork equipment.

Line power is available at the existing Dos Osos Reservoir site and existing Dos Osos Pumping Plant site; so, electrical power sources will be used as feasible and applicable at

those sites. Also, the temporary portable pump used at the Dos Osos Pumping Plant during construction will be electric, as detailed in the Project Description.

Implementation of Section 3.4A, Air Quality and Emissions Control, of Standard Construction Specification 01 35 44 ensures specified air emissions control BMPs will be implemented to minimize short-term construction diesel exhaust emissions.

Given the small size of the Project (approximately half-an-acre construction footprint), the limited number of truck and vehicle trips (Table 2.1), and the limited number of pieces of heavy equipment in use at any one time, and because Section 1.3E, Dust Control and Monitoring Plan; Section 1.3I, Tuneup Logs; Section 3.3B, Dust Control; and Section 3.4A, Air Quality and Emissions Control, of EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, have been incorporated into the Project, and require a Dust Control and Monitoring Plan, regular maintenance of construction vehicles and equipment, and include provisions for BMPs for dust and air quality emissions control, the Project's air quality impacts related to short-term construction particulate matter impacts and short-term diesel- and gasoline-powered construction equipment emissions will be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

- d. Less than Significant Impact.** At the existing Dos Osos Pumping Plant, the nearest sensitive receptor is a residence 100 feet from the pumping plant, at approximately the same elevation. However, the exposure of this sensitive receptor to short-term substantial pollutant concentrations will be less than significant, because the pumping plant rehabilitation consists of replacing electrical and mechanical equipment inside the existing pumping plant building and the temporary use of an electric portable pump; so, construction air emissions from construction activities (mainly emissions from construction worker vehicles and material delivery trucks) at this site will be minimal.

The nearest sensitive receptor to the existing Dos Osos Reservoir is a residence at 9 Los Norrabos, 160 feet from the reservoir, across Los Norrabos and approximately 30 feet higher in elevation. At the new dual reservoirs site, the nearest sensitive receptor is the same residence at 9 Los Norrabos, roughly 340 feet from the site, across Los Norrabos and approximately 40 feet lower in elevation than the bottom elevation of the proposed dual reservoirs. Given the distance of the sensitive receptors from the existing Dos Osos Reservoir and new dual Dos Osos Reservoir sites, the exposure of sensitive receptors to substantial pollutant concentrations will be minimal.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 35 44, Environmental Requirements. Section 1.3E requires a Dust Control and Monitoring Plan that details the means and methods for controlling and monitoring dust generated by demolition and other work on the site which requires that the plan shall:

- Comply with all applicable regulations, including, but not limited to, the BAAQMD Particulate Matter and Visible Emissions Regulation and Public Nuisance Rule.
- Outline BMPs for preventing dust emissions and provide guidelines for training of employees and procedures to be used during operations and maintenance activities.
- Detail the equipment and methods used to monitor compliance with the plan.

Implementation of Section 1.3E, Dust Control and Monitoring Plan, of Standard Construction Specification 01 35 44 ensures that dust generated by short-term construction activities will be monitored and controlled to minimize exposure of sensitive receptors to substantial dust concentrations.

Section 1.3I of EBMUD's Standard Construction Specification 01 35 44 requires tuneup logs that provide records that show construction equipment in use at the Project sites has undergone required maintenance and requires:

- Submittal of a log of required tuneups for all construction equipment, particularly haul and delivery trucks, on a quarterly basis for review.

Implementation of Section 1.3I, Tuneup Logs, of Standard Construction Specification 01 35 44 ensures that construction equipment used at the Project site will be maintained regularly for efficient operation, reducing exhaust emissions to the environment that could impact sensitive receptors.

Section 3.3B of EBMUD's Standard Construction Specification 01 35 44 includes provisions for dust control which requires implementation of all necessary dust control measures, including, but not limited to:

- Water and/or coarse rock all dust-generating construction areas as directed by Engineer to reduce the potential for airborne dust from leaving the site.
- Cover all haul trucks entering/leaving the site and trim their loads as necessary.
- Using wet power vacuum street sweepers to:
  - Sweep all paved access roads, parking areas, and staging areas at the construction site daily or as often as necessary.
  - Sweep public roads adjacent to the site at least twice daily or as often as necessary.
- The use of dry power sweeping is prohibited.
- All trucks and equipment, including their tires, shall be washed off prior to leaving the site.
- Gravel or apply non-toxic soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites.
- Water and/or cover soil stockpiles daily.
- Site accesses to a distance of 100 feet from the paved road shall be treated with a 12-inch layer of compacted coarse rock.



- Sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways from sites with a slope greater than one percent.
- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible.
- Building pads shall be laid as soon as possible after grading.
- All vehicle speeds shall be limited to 15 mph or less on the construction site and any adjacent unpaved roads.

Implementation of Section 3.3B, Dust Control, of Standard Construction Specification 01 35 44 also ensures that dust generated by short-term construction activities will be monitored and controlled to minimize exposure of sensitive receptors to substantial dust concentrations.

Section 3.4A of EBMUD's Standard Construction Specification 01 35 44 includes the following provisions for air quality and emissions control:

- The Contractor shall ensure that line power is used instead of diesel generators at all construction sites where line power is available.
- The Contractor shall ensure that for operation of any stationary, compression-ignition engines as part of construction, comply with Section 93115, Title 17, California Code of Regulations, Airborne Toxic Control Measure for Stationary Compression Ignition Engines, which specifies fuel and fuel additive requirements as well as emission standards.
- Fixed temporary sources of air emissions (such as portable pumps, compressors, generators, etc.) shall be electrically powered unless the Contractor submits documentation and receives approval from the Engineer that the use of such equipment is not practical, feasible, or available. All portable engines and equipment units used as part of construction shall be properly registered with CARB or otherwise permitted by the appropriate local air district, as required.
- Contractor shall implement standard air emission controls such as:
  - Minimize the use of diesel generators where possible.
  - Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes, as required by the California ATCM, Title 13, Section 2485 of California Code of Regulations. Clear signage shall be provided for construction workers at all access points.
  - Follow applicable regulations for fuel, fuel additives, and emission standards for stationary, diesel-fueled engines.
  - Locate generators at least 100 feet away from adjacent homes.
  - Perform regular low-emission tuneups on all construction equipment, particularly haul trucks and earthwork equipment.

Line power is available at the existing Dos Osos Reservoir site and existing Dos Osos Pumping Plant site; so, electrical power sources will be used as feasible and applicable at those sites. Also, the temporary portable pump used at the Dos Osos Pumping Plant during construction will be electric, as detailed in the Project Description.

Implementation of Section 3.4A, Air Quality and Emissions Control, of Standard Construction Specification 01 35 44 ensures specified air emissions control BMPs will be implemented to minimize short-term construction diesel exhaust emissions that could impact sensitive receptors.

Because Section 1.3E, Dust Control and Monitoring Plan, Section 1.3I, Tuneup Logs, Section 3.3B, Dust Control, and Section 3.4A, Air Quality and Emissions Control, of EBMUD Standard Construction Specification 01 35 44, Environmental Requirements, have been incorporated into the Project, and require a Dust Control and Monitoring Plan, include implementation of all BAAQMD-required BMPs for dust control, require regular maintenance of construction vehicles and equipment, and include provisions for BMPs for air emissions control, the Project impacts related to exposure of sensitive receptors to substantial pollutant concentrations will be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

- e. **Less than Significant Impact.** For the long-term, the rehabilitated pump units will operate within the enclosed Dos Osos Pumping Plant as the existing pump units did under preconstruction conditions. The new dual reservoirs' operation (consisting mainly of water levels changing within the reservoirs) will not generate objectionable odors, and all long-term reservoir operations will be powered by electricity. As such, the rehabilitated pumping plant and new dual reservoirs operations will not generate long-term objectionable odors affecting a substantial number of people.

Short-term construction activities requiring construction equipment and maintenance trucks that emit diesel- and/or gasoline-powered engine exhaust odors may be a potential source of objectionable odors. At the existing Dos Osos Pumping Plant, the short-term generation of objectionable odors will be less than significant, because the pumping plant rehabilitation consists of replacing electrical and mechanical equipment inside the existing pumping plant building and the temporary use of an electric portable pump. For the new and existing reservoir sites, though the distances of the sites from the nearest sensitive receptors and the low densities of residential housing in the surrounding neighborhood will minimize the generation of objectionable odors to a substantial number of people, there is still the potential for residents to be subjected to objectionable odors. However, the restriction of construction activities to daylight work hours and the implementation of the EBMUD standard practices and procedures below would reduce this potential impact to less than significant.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 35 44, Environmental Requirements.

Section 1.3I of EBMUD's Standard Construction Specification 01 35 44 requires tuneup logs that provide records that show construction equipment in use at the Project sites has undergone required maintenance and requires:

- Submittal of a log of required tuneups for all construction equipment, particularly haul and delivery trucks, on a quarterly basis for review.

Implementation of Section 1.3I, Tuneup Logs, of Standard Construction Specification 01 35 44 ensures that construction equipment used at the Project site will be maintained regularly for efficient operation, reducing exhaust emissions to the environment that could generate objectionable odors.

Section 3.4A of EBMUD's Standard Construction Specification 01 35 44 includes the following provisions for air quality and emissions control:

- The Contractor shall ensure that line power is used instead of diesel generators at all construction sites where line power is available.
- The Contractor shall ensure that for operation of any stationary, compression-ignition engines as part of construction, comply with Section 93115, Title 17, California Code of Regulations, ATCM for Stationary Compression Ignition Engines, which specifies fuel and fuel additive requirements as well as emission standards.
- Fixed temporary sources of air emissions (such as portable pumps, compressors, generators, etc.) shall be electrically powered unless the Contractor submits documentation and receives approval from the Engineer that the use of such equipment is not practical, feasible, or available. All portable engines and equipment units used as part of construction shall be properly registered with CARB or otherwise permitted by the appropriate local air district, as required.
- Contractor shall implement standard air emission controls such as:
  - Minimize the use of diesel generators where possible.
  - Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes as required by the California ATCM, Title 13, Section 2485 of California Code of Regulations. Clear signage shall be provided for construction workers at all access points.
  - Follow applicable regulations for fuel, fuel additives, and emission standards for stationary, diesel-fueled engines.
  - Locate generators at least 100 feet away from adjacent homes.
  - Perform regular low-emission tuneups on all construction equipment, particularly haul trucks and earthwork equipment.

Line power is available at the existing Dos Osos Reservoir site and existing Dos Osos Pumping Plant site; so, electrical power sources will be used as feasible and applicable at those sites. Also, the temporary portable pump used at the Dos Osos Pumping Plant during construction will be electric, as detailed in the Project Description.

Implementation of Section 3.4A, Air Quality and Emissions Control, of Standard Construction Specification 01 35 44 ensures specified air emissions control BMPs will be implemented to minimize short-term construction diesel exhaust emissions that could generate objectionable odors.

Because Section 1.3I, Tuneup Logs, and Section 3.4A, Air Quality and Emissions Control, of EBMUD Standard Construction Specification 01 35 44, Environmental Requirements, have been incorporated into the Project, and require regular maintenance of construction vehicles and equipment, and include provisions for BMPs for air emissions control, the Project impact related to creation of objectionable odors affecting a substantial number of people will be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

**IV. Biological Resources**

<b>Would the project:</b>	<b>Potentially Significant Impact</b>	<b>Less Than Significant With Mitigation Incorporated</b>	<b>Less Than Significant Impact</b>	<b>No Impact</b>
a) Have a substantial adverse impact, 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 Dept. of Fish & Game or U.S. Fish & Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse impact on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Dept. of Fish & Game or U.S. Fish & Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Have a substantial adverse impact 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Interfere substantially with the movement of any resident or migratory fish or wildlife species or with established resident or migratory wildlife corridors, or impede the use of wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**DISCUSSION**

The biological resources impact analysis is based upon a report titled Dos Osos Reservoir Replacement Project Biological Resources Assessment, prepared by EBMUD biologists (July 2016). The potential for special-status species to occur at the Project sites was evaluated by determining which special-status species occur in the vicinity of the Project sites through a literature and database search. Special-status species included those listed as endangered, threatened, rare, or proposed for listing by U.S. Fish and Wildlife Service (USFWS) or California Department of Fish and Wildlife (CDFW). California Native Plant Society (CNPS) plant lists and locally rare plant lists were also reviewed. Database searches for known occurrences of special-status species focused on a five-mile area around the Project sites. The

following sources were reviewed to determine which special-status plant and wildlife species have been documented to occur in the vicinity of the Project sites:

- California Natural Diversity Database (CNDDDB) records
- Special Vascular Plants, Bryophytes, and Lichens List (CDFW)
- Special Animals List (CDFW)
- USFWS Official Species List
- CNPS Electronic Inventory records
- CNPS list of Rare, Unusual and Significant Plants of Alameda and Contra Costa Counties
- EBMUD Managed Species Database

In addition, EBMUD biologists conducted field studies at the existing pumping plant site, the existing reservoir site, and the new dual reservoirs site to determine: 1) if plant communities were present within the Project site, 2) if existing conditions provided suitable habitat for any special-status plant or wildlife species, and 3) if sensitive habitats were present. Based on the results of the initial field studies, additional field surveys were conducted at the existing reservoir and new dual reservoirs sites. These additional field surveys included:

- Three botanical surveys by a qualified botanist to determine presence/absence of rare plant species conducted during the bloom times of the potentially occurring rare plant species.
- A habitat assessment conducted by a qualified entomologist to determine the suitability of the sites to support a special-status species snail.

Due to the potential for occurrences of several federally- and state-protected, special-status species within the Project sites, coordination with USFWS and/or CDFW regarding necessary permits will be required. EBMUD will comply with any and all environmental requirements described in conservation plans, agreements, and permits.

- a. Less than Significant Impact with Mitigation Incorporated.** The biological inventory database searches and field studies identified several plant, reptile, bird, mammal and invertebrate special-status species that have at least a moderate potential to occur at the Project sites. The following lists the special-status species by category and details the associated mitigations at the Project sites.

**Existing Dos Osos Reservoir and Dos Osos Pumping Plant Sites:** The existing Dos Osos Reservoir and Dos Osos Pumping Plant are surrounded by coast live oak woodland habitat; both sites are landscaped and regularly maintained with large portions of the sites consisting of paved surfaces. The existing Dos Osos Reservoir site is bordered by Monterey pines that were planted for screening when the reservoir was originally constructed. Both the existing Dos Osos Reservoir and Dos Osos Pumping Plant sites are characterized by ruderal habitat. Ruderal habitat occurs where native vegetation has been removed by grading or other surface disturbances, and it is characteristic of roadsides and vacant lots. These areas can become recolonized by invasive exotic species, scattered shrubs and trees. Structures within ruderal areas can provide habitat for many native and non-native wildlife species that are adapted to human disturbance. These sites lack unique substrates (e.g., alkaline or serpentine soils) and

micro-habitats (e.g., volcanic rock outcrops, vernal pools, wetlands, etc.) and are surrounded by residential development.

No special-status species were observed at either the existing Dos Osos Pumping Plant or Dos Osos Reservoir sites, but several species have a moderate potential to occur given field conditions surveyed by the biologists and/or the proximity of recorded occurrences. Special-status species with at least a moderate potential to occur at the existing Dos Osos Pumping Plant site are nesting birds and roosting bats. The Alameda whipsnake and dusky-footed woodrat have a low potential to occur at the pumping plant site. Special-status species with at least a moderate potential to occur at the existing Dos Osos Reservoir site are: the dusky-footed woodrat, the Alameda whipsnake, as well as nesting birds and roosting bats.

**New Dual Dos Osos Reservoirs Site:** The new dual reservoirs site is situated primarily within annual grassland habitat which is open grasslands composed mainly of introduced annual grass species. The grassland is bordered by a coast live oak woodland to the north and east. Oak woodlands are considered vital habitats for the conservation of many bird and mammal species. Coast live oak woodlands may provide migration and dispersal corridors for a variety of wildlife species.

Coyote brush scrub habitat is present in the upland slopes to the west of the new site. Coyote brush scrub is a common and widespread scrub community found along the California coast, coast ranges and Sierra Nevada foothills. Coyote brush scrub is characterized by the presence of coyote brush (*Baccharis pilularis*) and an indistinct assemblage of shrub, sub-shrub and herbaceous understory associates. These scrub types consist of low shrubs up to six feet tall with a well-developed herbaceous or low woody understory. Vegetative cover is usually dense with scattered grassy openings. Stands of coyote brush may transition to forest and woodland habitats or exist as persistent, relatively stable communities. There is a scrub patch adjacent to the site with mature stands of coyote brush with emergent oak and bay trees. Scrub habitat provides habitat for reptiles, cover and foraging habitat for mammals, and foraging and nesting habitat for bird species that are attracted to the scrub canopy.

Table 3.1 shows a list of special-status species for which a) CNDDDB occurrences or EBMUD-managed species database occurrences have been noted within one mile of a Project site, and b) have at least a moderate potential to occur at a Project site based on field studies conducted by EBMUD biologists, or c) they have been observed at a Project site. While all the listed species in Table 3.1 have the potential to occur at the new dual Dos Osos Reservoirs site, a subset of the list has the potential to occur at either the existing Dos Osos Pumping Plant site or the existing Dos Osos Reservoir site. Each special-status species' potential to occur is listed by Project site in the table.

**TABLE 3.1  
Special-Status Species That May Occur in the Project Sites**

COMMON NAME	SCIENTIFIC NAME	STATUS FED/STATE/ CNPS <sup>1</sup>	HABITAT	OCCURRENCE POTENTIAL
<b>PLANTS</b> – *While not listed as special-status species, these plant species are identified as "locally rare" within the Orinda region.				
California ponyfoot	<i>Dichondra donelliana</i>	NA/NA/NA* (Locally unusual or significant)*	Coastal prairie and northern coastal scrub communities. Blooms January through March.	New dual Dos Osos Reservoirs site: Observed at the dual reservoirs site during protocol survey. Existing Dos Osos Pumping Plant and Dos Osos Reservoir sites: No potential to occur.
Rayless arnica	<i>Arnica discoidea</i>	NA/NA/NA* (Locally unusual or significant)*	Foothill woodlands, forests and chaparral habitat. Blooms from April to June.	New dual Dos Osos Reservoirs site: Observed at the dual reservoirs site during protocol survey. Existing Dos Osos Pumping Plant and Dos Osos Reservoir sites: No potential to occur.
<b>REPTILES</b>				
Alameda whipsnake	<i>Masticophis lateralis euryxanthus</i>	FT/CT	Inhabits southeast- to southwest-facing slopes and ravines where chaparral or coastal scrub form a vegetative mosaic with oak woodlands and grasses. Uses rock outcrops for refugia. Restricted to the coast ranges between San Francisco Bay and Monterey.	New dual Dos Osos Reservoirs site: High potential to occur. Suitable habitat present. Within designated critical habitat. Twelve occurrences within a one-mile radius of the Project site. Existing Dos Osos Reservoir site: High potential to occur. Existing Dos Osos Pumping Plant site: Low potential to occur.
<b>BIRDS</b>				
Bell's sparrow	<i>Amphispiza belli belli</i>	BCC/WL	Generally prefers semi-open habitats with evenly spaced shrubs one-two meters high. Found in dry chaparral and coastal sage scrub in Contra Costa County.	All sites: Moderate potential to occur. Marginal habitat adjacent to Project sites.



*Mitigated Negative Declaration*  
*Dos Osos Reservoir Replacement Project*

COMMON NAME	SCIENTIFIC NAME	STATUS FED/STATE/ CNPS <sup>1</sup>	HABITAT	OCCURRENCE POTENTIAL
Golden eagle	<i>Aquila chrysaetos</i>	BCC/CFP	Found primarily in open hilly or mountainous grasslands and oak savannah. Forages in a variety of habitats including grasslands, chaparral, and oak woodland with abundant mammals. Nests on cliffs, escarpments, and tall trees.	All sites: Moderate potential to occur. Suitable foraging and marginal nesting habitat present.
Short-eared owl	<i>Asio flammeus</i>	BCC/CSC	Found in open areas with low vegetation such as annual and perennial grasslands, prairies, dunes, meadows, irrigated lands, and emergent wetlands. Roosts by day on ground, on low open perch, under low shrub, or in conifers.	All sites: Moderate potential to occur. Suitable foraging habitat on site.
Ferruginous hawk	<i>Buteo regalis</i>	BCC/WL	Occurs in open grasslands, sagebrush flats, desert scrub, low foothills and surrounding valleys, and fringes of pinyon-juniper habitats. In California, the ferruginous hawk is an uncommon winter resident and migrant at lower elevations in the coast ranges.	All sites: Moderate potential to occur. Suitable foraging habitat present.
Swainson's hawk	<i>Buteo swainsoni</i>	BCC/CT	Forages in grasslands, grain fields or livestock pastures adjacent to nesting habitat. Nests in large trees in open areas. Nests typically in solitary trees, bushes, or in small groves along shelterbelts.	All sites: Moderate potential to occur. Suitable foraging habitat present.
White-tailed kite	<i>Elanus leucurus</i>	NA/CFP	Inhabits agricultural areas, low rolling foothills, valley margins with scattered oaks, river flood plains or marshes adjacent to deciduous woodlands. Forages in grasslands and meadows.	All sites: Moderate potential to occur. Suitable foraging habitat present.
Bald eagle	<i>Haliaeetus leucocephalus</i>	BCC/CE	Found near ocean shorelines, lakes, reservoirs, river systems, and coastal wetlands. Usually found less than two kilometers from water that offers foraging opportunities. Foraging habitat consists of large bodies of water or rivers with abundant fish and adjacent perching sites such as snags or large trees.	All sites: Moderate potential to occur. Suitable foraging habitat at San Pablo Reservoir.
Loggerhead shrike	<i>Lanius ludovicianus</i>	BCC/CSC	Nests in woodland and scrub habitats at margins of open grasslands. Often uses lookout	All sites: Moderate potential to occur. Suitable foraging habitat on site and

COMMON NAME	SCIENTIFIC NAME	STATUS FED/STATE/ CNPS <sup>1</sup>	HABITAT	OCCURRENCE POTENTIAL
			perches such as fence posts. Found in lowlands and foothills.	nesting habitat adjacent to Project area.
<b>MAMMALS</b>				
Pallid bat	<i>Antrozous pallidus</i>	NA/CSC	Open, dry habitats such as deserts, grasslands, and shrublands with rocky areas for roosting. Roosts in caves, mine tunnels, crevices in rocks, buildings, and trees. Very sensitive to disturbance of roosting sites. Forages in open habitats.	All sites: Moderate potential to occur. Mature trees on site may provide suitable roost habitat.
San Francisco dusky-footed woodrat	<i>Neotoma fuscipes annectens</i>	NA/CSC	Evergreen or live oaks and other dense, thick-leaved trees and shrubs are important habitat components for this species. In riparian areas, highest densities of woodrats and their houses are often encountered in willow thickets with an oak overstory. Nests constructed on the ground or in trees.	New dual Dos Osos Reservoirs site: High potential to occur. Existing Dos Osos Reservoir site: Moderate potential to occur. Suitable habitat present in adjacent oak woodlands and chaparral. No habitat within tank footprint. Existing Dos Osos Pumping Plant site: Low potential to occur.
<b>INVERTEBRATES</b>				
Bridges' coast range shoulderband snail	<i>Helminthoglypta nickliniana bridgesi</i>	NA/NA (Special Animal)	Inhabits open hillsides of Alameda and Contra Costa Counties. Found under rock piles, under tall grasses or weeds and under riparian woody debris.	New dual Dos Osos Reservoirs site: Moderate potential to occur. Open hillsides surrounded by grass and herbaceous vegetation present. Existing Dos Osos Pumping Plant and Dos Osos Reservoir sites: No potential to occur.

<sup>1</sup>USFWS Federal Listing Categories:

- FE Federal Endangered
- FT Federal Threatened
- BCC Bird of Conservation Concern

CDFW State Listing Categories:

- CE California Endangered
- CT California Threatened
- CSC California Species of Special Concern
- WL State of the Birds Watch List
- CFP California Fully Protected Animal

NA: Not listed

### **Special-Status Plants (Less than Significant Impact with Mitigation Incorporated)**

No special-status plants have the potential to occur at the existing Dos Osos Pumping Plant or existing Dos Osos Reservoir sites, because both sites are currently paved.

At the new dual Dos Osos Reservoirs site, no federal- or state-listed plant species were found, and no plant species listed in the statewide CNPS rare and endangered plant inventory were found during protocol surveys. Protocol surveys follow specific procedures approved by regulatory agencies for conducting targeted biological surveys. Two plant species considered “locally rare” by the CNPS East Bay Chapter were observed during rare plant protocol surveys. The California ponysfoot and rayless arnica are identified in the Rare, Unusual and Significant Plants of Alameda and Contra Costa Counties database (CNPS East Bay Chapter, 2016). Locally rare species are those species that the scientific community considers sensitive, unique or that occur at the limits of their natural range within a specific region. The California ponysfoot is ranked by the East Bay CNPS chapter as “A1,” which indicates that the species is currently known from two or less regions in Alameda and Contra Costa Counties but is not considered rare statewide. The rayless arnica is ranked as “B,” which indicates that the species is on the East Bay CNPS chapter’s high priority watch list. Plant species ranked as “B” are currently known to be found within six to nine regions within Alameda and Contra Costa Counties. According to the East Bay Chapter’s ranking system, “A1” plants are afforded protection under CEQA, where those listed as “B” are not protected.

Clearing and grubbing, grading and the movement of equipment may impact sensitive plant species at the new dual Dos Osos Reservoirs site. Sensitive plant species include all special-status and rare plants. To mitigate the potential impacts to sensitive plant species, EBMUD will implement Mitigation Measure BIO-1.

**Mitigation Measure BIO-1:** Implement the following avoidance or minimization measures for sensitive plant species.

- Before beginning construction, all Contractor construction personnel are required to attend an environmental training program provided by EBMUD of up to one day for site supervisors, foremen and project managers and up to 30 minutes for non-supervisory Contractor personnel. Contractor construction personnel will receive a CNPS-approved worker environmental awareness training from a qualified biologist (EBMUD). The training will include a description of the sensitive plant species in the Project vicinity, including natural history and habitat, the general protection measures to be implemented to protect the species, and a delineation of the limits of the work areas. Contractor construction personnel will be required to sign documents stating that they understand that take of special-status plant species and destruction or damage of their habitat would be a violation of state and federal law.
- Project boundaries will be delineated and flagged prior to construction by the Contractor. All construction activities will be conducted within the delineated Project boundaries.

- Staging areas and construction access points will be delineated in the field away from sensitive plant species, and all staging will occur within these designated areas.
- In the spring prior to construction, a qualified botanist (EBMUD) will conduct preconstruction sensitive plant surveys in all areas where ground disturbance will occur. Any observed sensitive plant species will be mapped and flagged for avoidance where feasible. EBMUD will notify CDFW or CNPS upon discovery of any sensitive plant species during preconstruction surveys.
- Sensitive plant species will be avoided or minimized by limiting ground disturbance where sensitive plants occur.
- If California ponysfoot or rayless arnica cannot be avoided, EBMUD will salvage the affected plants and transplant them to a similar habitat in the Project vicinity. The re-established population should achieve a 1:1 ratio (transplanted:re-established) after two years. If this performance criterion cannot be met, an in-lieu fee will be paid to the state CNPS program.
- If any additional sensitive plant species are discovered on site that cannot be avoided, the appropriate agencies will be consulted by EBMUD to determine the appropriate species-specific mitigation measures.
- Mitigation for sensitive plant species may include: repairing, rehabilitating or restoring the impacted area; preserving in-situ populations on site; or by providing offsite compensation. Offsite compensation may include the permanent protection of an offsite population through a conservation easement or the purchase of mitigation banking credits at a 1:2 ratio.

Because Mitigation Measure BIO-1 requires EBMUD to conduct preconstruction surveys for sensitive plants, notify appropriate agencies if any sensitive plant species are found, and coordinate with regulatory agencies to comply with appropriate species-specific avoidance and minimization measures, the potential for significant construction-related impacts on sensitive plants will be reduced to less than significant. The Mitigation Monitoring and Reporting Plan (Appendix A) lists the applicable mitigation measures to be implemented.

### **Special-Status Amphibians (No Impact)**

The one special-status amphibian that has recorded occurrences within a five-mile radius of the Project sites is the California red-legged frog (*Rana draytonii*) (CRLF); however, there are no CNDDB CRLF observations within one mile of the Project sites. The Project sites are outside critical habitat for this species. This species was not observed during the site assessments. CRLFs are present in several other ponds and wetlands within the San Pablo and Briones Watersheds. The CRLF may use San Pablo Creek (approximately 0.9 miles from the new dual reservoirs site) to move between habitats, particularly in the breeding season. Variable flows in San Pablo Creek make the habitat marginal for CRLF breeding, and no CRLFs have been observed in the creek. There is no aquatic habitat at any of the Project sites and limited potential for upland estivation or dispersal at the sites. For these reasons, the CRLF has low potential to occur within the Project sites; therefore, Project construction will have no impact on the CRLF.

### **Special-Status Reptiles (Less than Significant Impact with Mitigation Incorporated)**

The new dual Dos Osos Reservoirs site is within USFWS-designated critical habitat for the Alameda whipsnake (*Masticophis lateralis euryxanthus*), and the existing Dos Osos Reservoir site is directly adjacent to USFWS-designated critical habitat for the Alameda whipsnake. Primary constituent elements for the Alameda whipsnake include: (1) scrub/shrub communities with a mosaic of open and closed canopy, (2) woodland or annual grassland plant communities contiguous to lands containing scrub/shrub communities with a mosaic of open and closed canopy, and (3) lands containing rock outcrops, talus and small mammal burrows within or adjacent to scrub/woodland/grassland communities. The new dual Dos Osos Reservoirs site is located in grassland on a southeasterly aspect within a mosaic of scrub and oak woodlands which has abundant small mammal burrows, and rock outcrops are likely to occur nearby. While no Alameda whipsnakes were observed during field visits to the sites, there have been numerous local occurrences recorded by EBMUD and listed within the CNDDB for the species in the Project vicinity. Also, scrub habitat lays upslope of the new dual Dos Osos Reservoirs site but outside of proposed construction and staging areas; no scrub habitat patches will be impacted by the Project. Due to the location of the new dual Dos Osos Reservoirs site on critical habitat for the Alameda whipsnake, there is high potential for the whipsnake to occur on this site.

While the existing Dos Osos Reservoir site is adjacent to critical habitat for the Alameda whipsnake, this highly disturbed site does not include all the primary constituent elements for the Alameda whipsnake. The existing Dos Osos Reservoir site does include fringe woodland plant communities contiguous to the watershed lands that contain scrub/shrub communities with a mosaic of open and closed canopy. However, the paved footprint of the existing reservoir site is adjacent to scrub habitat and provides suitable basking substrate for the species. Thus, there is a high potential for the whipsnake to occur on the existing Dos Osos Reservoir site.

The Dos Osos Pumping Plant site is situated in a suburban neighborhood surrounded by oak woodlands. The pumping plant site is not within critical habitat and does not include the primary constituent elements for the whipsnake. However, the site is within 1,000 feet of open space land, and whipsnakes may disperse into the neighborhood. Alameda whipsnakes have been observed using paved roadways for basking, and increased traffic to the pumping plant site may increase the likelihood of a vehicular encounter. Since construction activities occurring at the pumping plant site will occur within the existing building and no ground disturbance will occur at the pumping plant site, there is low potential for impacts to the Alameda whipsnake at the Pumping Plant site.

Construction of the new dual Dos Osos Reservoirs and demolition of the existing Dos Osos Reservoir have the potential to take individual snakes if they are present in the area subject to disturbance. Alameda whipsnakes have two seasonal peaks in activity, one during the spring mating season and the other during late summer/early fall. During construction, which is proposed during the active period for Alameda whipsnakes, take could occur during the movement of construction equipment and other vehicles, the removal of vegetation, excavation work, reservoir and retaining wall installation, trenching of pipelines and paving

of surfaces. Also, the construction of the new dual Dos Osos Reservoirs and associated access road on previously undeveloped watershed lands could potentially impact long-term habitat for the Alameda whipsnake. To mitigate potentially significant impacts to Alameda whipsnakes at the new dual Dos Osos Reservoirs site and the existing Dos Osos Reservoir site and the existing Dos Osos Pumping Plant site, EBMUD will implement Mitigation Measure BIO-2.

**Mitigation Measure BIO-2:** Implement the following avoidance and minimization measures for the Alameda whipsnake:

- Before beginning construction, all Contractor construction personnel are required to attend an environmental training program provided by EBMUD of up to one day for site supervisors, foremen and project managers and up to 30 minutes for non-supervisory Contractor personnel. Contractor construction personnel will receive USFWS-approved worker environmental awareness training from a qualified biologist (EBMUD). The training will include a description of the Alameda whipsnake, including natural history and habitat, a review of the state and federal listing of the species, the general protection measures to be implemented to protect the Alameda whipsnake, and a delineation of the limits of the work areas. Contractor construction personnel will be required to sign documents stating that they understand that take of listed species and destruction or damage of their habitat would be a violation of state and federal law.
- Habitat restoration work may include replanting or seeding with plant species that were removed during construction and removal activities. All wildlife exclusion fencing, as described in Mitigation Measure BIO-5, and construction-related materials will be removed from the site.
- Seven days and twenty-four hours prior to construction activities, the Project area will be surveyed for Alameda whipsnakes by a qualified biologist (EBMUD). Surveys of the Project area will be repeated if a lapse in construction activity of two weeks or greater occurs.
- Movement of heavy equipment will be confined to existing roadways and the construction work areas defined on Project plans to minimize habitat disturbance.
- Clearing and grubbing of the construction site will be confined to the minimum area necessary to facilitate construction activities.
- If the Alameda whipsnake is observed at the construction site at any time during construction, work will cease immediately until the snake leaves the work area on its own or is relocated outside of the work area by a permit-approved qualified biologist (EBMUD). Any sightings and any incidental take will be reported to the USFWS and CDFW immediately by EBMUD.
- A monitoring report of all activities associated with surveys and mitigation for this species will be submitted to the USFWS and CDFW by EBMUD no later than three months after construction is completed. The monitoring report will describe methods and results of any field survey efforts and mitigation measures implemented before, during or after project construction.

- To mitigate losses to critical habitat area due to construction of the new dual reservoirs, EBMUD will obtain habitat credits for habitat suitable for the Alameda whipsnake from a conservation or mitigation bank at a minimum ratio of 1:3 (habitat disturbed:habitat credit purchased).
- EBMUD will obtain the required permits from USFWS and CDFW for the potential take of Alameda whipsnakes.

The Project has the potential to take individual snakes if they are present in the area during construction and the potential to significantly impact long-term Alameda whipsnake habitat due to construction of the new dual Dos Osos Reservoirs. Because Mitigation Measure BIO-2 mitigates the potential impacts to the Alameda whipsnake by: requiring EBMUD to obtain necessary permits from USFWS and CDFW for the Alameda whipsnake, environmental awareness training for construction workers for the Alameda whipsnake, preconstruction surveys for Alameda whipsnakes, the cessation of work if any Alameda whipsnakes are encountered, a monitoring plan submitted to the USFWS and CDFW regarding any actions taken for the Alameda whipsnake, and EBMUD purchase of habitat credits for Alameda whipsnake critical habitat from a conservation or mitigation bank at a ratio of 1:3, implementation of Mitigation Measure BIO-2, would reduce impacts from short-term construction activities and permanent habitat loss to the Alameda whipsnake to less than significant levels. The Mitigation Monitoring and Reporting Plan (Appendix A) lists the applicable mitigation measures to be implemented.

### **San Francisco Dusky-Footed Woodrat (Less than Significant Impact with Mitigation Incorporated)**

The San Francisco dusky-footed woodrat is a medium-sized rat and is mostly nocturnal and active year round. The San Francisco dusky-footed woodrat can be found in coast live oak woodlands, coyote brush scrub, riparian areas and other habitats with dense trees and shrubs. Woodrats typically build nests of sticks and other debris on the ground, in the lower branches of trees and occasionally in human-made structures. Nests are often reused, and more than one woodrat may occupy the same nest. No woodrats were detected during the field reconnaissance; however, the species has a high potential to occur in the coast live oak woodlands adjacent to both the new dual Dos Osos Reservoirs site and the existing Dos Osos Reservoir site. The new dual Dos Osos Reservoirs and access road construction and demolition of the existing Dos Osos Reservoir could lead to the loss of woodrat nests and the mortality of woodrats. The species has a low potential to occur within the parking area at the Dos Osos Pumping Plant site.

To mitigate potentially significant impacts on the San Francisco dusky-footed woodrat at the new dual Dos Osos Reservoirs site and the existing Dos Osos Reservoir site, EBMUD will implement Mitigation Measure BIO-3.

**Mitigation Measure BIO-3:** Implement the following avoidance or minimization measures for the San Francisco dusky-footed woodrat:

- Before beginning construction, all Contractor construction personnel are required to attend an environmental training program provided by EBMUD of up to one day for site supervisors, foremen and project managers and up to 30 minutes for non-supervisory Contractor personnel. Contractor construction personnel will receive USFWS-approved worker environmental awareness training from a qualified biologist (EBMUD). The training will include a description of the San Francisco dusky-footed woodrat, including natural history and habitat, a review of the state and federal listing of the species, the general protection measures to be implemented to protect the San Francisco dusky-footed woodrat, and a delineation of the limits of the work areas. Contractor construction personnel will be required to sign documents stating that they understand that take of listed species and destruction or damage of their habitat would be a violation of state and federal law.
- A preconstruction survey will be performed by a qualified biologist (EBMUD) within seven days prior to the start of ground-disturbing activities to identify the locations of active San Francisco dusky-footed woodrat nests within the Project boundary. Any woodrat nests detected will be mapped and flagged for avoidance by the qualified biologist (EBMUD).
- If active nests are determined to be present, avoidance measures will be implemented first. Because San Francisco dusky-footed woodrats are year-round residents, avoidance mitigation is limited to restricting Project activities to avoid direct impacts to San Francisco dusky-footed woodrats and their active nests to the extent feasible. A minimum ten-foot buffer should be maintained between Project construction activities and each nest to avoid disturbance. In some situations, a smaller buffer may be allowed if, in the opinion of a qualified biologist (EBMUD), removing the nest would be a greater impact than that anticipated as a result of Project activities.
- If an unoccupied woodrat nest is found within the Project site and it cannot be avoided, the nest should be disassembled by hand by a qualified biologist (EBMUD). The nest materials should be relocated off site outside of the wildlife exclusion fencing to prevent rebuilding.
- If occupied nests are found within the Project site, and a litter of young is found or suspected, the nest shall be left alone for two to three weeks before a recheck to verify that young are capable of independent survival before proceeding with nest dismantling. Dismantling shall be done by hand, allowing any animals to escape either along existing woodrat trails or toward other available habitat.
- EBMUD will notify CDFW of any nests, unoccupied or occupied, before they are dismantled.

Because Mitigation Measure BIO-3 requires preconstruction dusky-footed woodrat surveys, avoidance measures and buffer zones for active nests, and mitigations for both occupied and unoccupied nests, implementation of Mitigation Measure BIO-3 would reduce impacts, due to short-term construction, on the San Francisco dusky-footed woodrat to less than significant levels. The Mitigation Monitoring and Reporting Plan (Appendix A) lists the applicable mitigation measures to be implemented.



**Special-Status Invertebrates (Less than Significant Impact with Mitigation Incorporated)**

The terrestrial Bridges' coast range shoulderband snail is known to occur in Contra Costa and Alameda Counties from Berkeley and San Pablo to the eastern base of Mount Diablo. The snail was not observed during initial site assessments. However, the species is difficult to identify, and targeted surveys are required to detect the species. Suitable habitat for the Bridges' coast range shoulderband snail exists at the new dual Dos Osos Reservoirs site but not at the existing Dos Osos Pumping Plant or Dos Osos Reservoir sites; therefore, the snail has the potential to only be present at the new dual Dos Osos Reservoirs site.

The Bridges' coast range shoulderband snail is not a federal- or state-listed species, but the snail is designated a "Special Animal" by CDFW due to its history of being reviewed as a candidate for federal listing, and, as such, occurrences of the snail are tracked by CDFW in the CNDDDB. Grubbing, grading and the movement of equipment may cause direct mortality if the species is present at the new dual Dos Osos Reservoirs site during construction activities.

To mitigate potentially significant impacts on the Bridges' coast range shoulderband snail at the new dual Dos Osos Reservoirs site, EBMUD will implement Mitigation Measure BIO-4.

**Mitigation Measure BIO-4:** Implement the following avoidance or minimization activities for Bridges' coast range shoulderband snails:

- Before beginning construction, all Contractor construction personnel are required to attend an environmental training program provided by EBMUD of up to one day for site supervisors, foremen and project managers and up to 30 minutes for non-supervisory Contractor personnel. Contractor construction personnel will receive worker environmental awareness training from a qualified biologist (EBMUD). The training will include a description of the Bridges' coast range shoulderband snail, including natural history and habitat, the general protection measures to be implemented to protect the snail, and a delineation of the limits of the work areas.
- A preconstruction survey will be performed by a qualified biologist (EBMUD) within 30 days prior to the start of ground-disturbing activities to provide a systematic search of vegetation and objects on site that could provide suitable shelter for the Bridges' coast range shoulderband snail.
- All live Bridges' coast range shoulderband snails of any life stage that are found during the preconstruction surveys will be captured and moved outside of the Project site, by a qualified biologist (EBMUD), to a site that provides suitable habitat.

Because Mitigation Measure BIO-4 requires a preconstruction survey for the Bridges' coast range shoulderband snail and capture, and relocation of any Bridges' coast range shoulderband snails found on the new dual Dos Osos Reservoirs site, implementation of Mitigation Measure BIO-4 would reduce short-term construction impacts to the Bridges' coast range shoulderband snail to less than significant levels. The Mitigation Monitoring

and Reporting Plan (Appendix A) lists the applicable mitigation measures to be implemented.

### **Wildlife Exclusion Fencing**

During construction and/or demolition at the existing Dos Osos Reservoir and new dual Dos Osos Reservoirs sites, special-status animal species with a moderate potential to occur at either site have the potential to be impacted by construction activities, including clearing, grading, excavation, stockpiling, and demolition. At the existing Dos Osos Pumping Plant site, construction activities are limited to replacement of existing electrical and mechanical equipment within the existing pumping plant building, so special-status animal species will not be impacted by clearing, grading, excavation, stockpiling or demolition construction activities. Mitigation Measure BIO-5, Wildlife Exclusion Fencing, is required at the existing Dos Osos Reservoir and new dual Dos Osos Reservoirs sites to minimize the occurrence of special-status animal species in designated construction sites. Wildlife exclusion fencing would allow for the egress of special-status animal species from designated construction sites and would prevent re-entry of special-status animal species to designated construction sites,

#### **Mitigation Measure BIO-5: Wildlife exclusion fencing.**

- Orange barrier safety fencing will be installed along the outside edges of the construction area to prevent encroachment of construction personnel and equipment beyond the approved limits of work.
- Wildlife exclusion fencing constructed of plywood, plastic, aluminum or silt fence material will be installed around the work area. Wildlife exclusion fencing will be buried (six inches, minimum) to prevent animals passing under the fence and will be high enough (three feet, minimum) to prevent amphibians, reptiles and small mammals from passing over the fence. Overhanging vegetation will be trimmed. The fencing will be inspected and repaired regularly. The fencing will be removed only when all construction equipment is removed from the Project site.
- The fencing will contain one-way egress for special-status species to the extent possible.
- A barrier to prevent special-status species from entering the work site will be placed across access roads into and out of the work site at the end of the day to prevent animal movement into the site overnight.

By being present at the new dual Dos Osos Reservoirs and existing Dos Osos Reservoir sites during construction, special-status animal species have the potential to be injured or harmed by short-term construction activities and heavy construction equipment. Because Mitigation Measure BIO-5 requires fencing that would allow for the egress of special-status animal species from designated construction sites and would prevent re-entry of special-status animal species to designated construction sites, implementation of Mitigation Measure BIO-5 and Mitigation Measures BIO-2 through BIO-4 at the new dual Dos Osos Reservoirs and existing Dos Osos Reservoir sites would reduce short-term construction impacts to special-

status species to less than significant. The Mitigation Monitoring and Reporting Plan (Appendix A) lists the applicable mitigation measures to be implemented.

### **Special-Status Nesting Birds (Less than Significant Impact)**

Avian species that are protected under the Migratory Bird Treaty Act (MBTA) have high potential to nest within all three Project sites (existing Dos Osos Pumping Plant, existing Dos Osos Reservoir, and new dual Dos Osos Reservoirs). Suitable nesting habitat for various raptors, as well as other migratory bird species, is present on or near the Project sites. Disruption of nesting birds could occur as a result of increased human activity (e.g., due to the use of heavy equipment and human traffic) during the breeding season (approximately February through August). Bird species may use trees, shrubs, man-made structures or the ground for nesting habitat. Impacts to potential nesting habitat could occur during construction as a result of tree and shrub removal, ground disturbance, equipment movement, or by direct mortality. Potential impacts on migratory birds include the destruction of eggs or occupied nests, direct mortalities of young, and the abandonment of nests with eggs or young birds prior to fledging. Potentially significant impacts could result from Project construction activities that would destroy occupied nests or cause migratory birds to abandon their nests.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 35 44, Environmental Requirements. Section 3.8, Protection of Birds Protected under the Migratory Treaty Act and Roosting Bats, of this standard construction specification includes the following provisions:

- Before beginning construction, all Contractor construction personnel are required to attend an environmental training program (provided by EBMUD) of up to one day for site supervisors, foremen and project managers and up to 30 minutes for non-supervisory Contractor personnel. The training program will be completed in person or by watching a video, at a District designated location, conducted by a qualified biologist. The program will discuss all sensitive habitats and sensitive species that may occur within the project work limits, including the responsibilities of Contractor's construction personnel, applicable mitigation measures, and notification requirements. The Contractor is responsible for ensuring that all workers requiring training are identified to the District. The training will include a description of the nesting birds of the MBTA, including natural history and habitat, the general protection measures to be implemented to protect the MBTA bird species, and a delineation of the limits of the work areas.
- It is unlawful to pursue, hunt, take, capture, or kill any migratory bird without a permit issued by the U.S. Department of the Interior.
- If construction commences between February 1 and August 31, during the nesting season, the District will conduct a preconstruction survey for nesting birds within 7 days prior to construction to ensure that no nest will be disturbed during construction.
- If active nests of migratory bird species (listed in the MBTA) are found within the project site, or in areas subject to disturbance from construction activities, an avoidance buffer to avoid nest disturbance shall be constructed. The buffer size will be determined by the

District in consultation with California Department of Fish and Wildlife (CDFW) and is based on the nest location, topography, cover and species' tolerance to disturbance.

- If an avoidance buffer is not achievable, a qualified biologist provided by the District will monitor the nest(s) to document that no take of the nest (nest failure) has occurred. Active nests shall not be taken or destroyed under the MBTA and, for raptors, under the CDFW Code. If it is determined that construction activity is resulting in nest disturbance, work should cease immediately and the Contractor shall notify the Engineer who will consult with the qualified biologist and appropriate regulatory agencies.
- If preconstruction surveys indicate that nests are inactive or potential habitat is unoccupied during the construction period, no further action is required. Trees and shrubs within the construction footprint that have been determined to be unoccupied by special-status birds or that are located outside the avoidance buffer for active nests may be removed. Nests initiated during construction (while significant disturbance from construction activities persist) may be presumed to be unaffected, and only a minimal buffer, determined by District's biologist, would be necessary.

Because Section 3.8, Protection of Birds Protected under the Migratory Treaty Act and Roosting Bats, of EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, has been incorporated into the Project, and includes provisions for preconstruction nesting bird surveys, avoidance of construction during the nesting season, and delineation of avoidance buffer zones, impacts to migratory birds, including destruction of potential nesting habitat, eggs or occupied nests, direct mortalities of young, and the abandonment of nests with eggs or young birds prior to fledging, would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

### **Roosting Bat Species (Less than Significant Impact)**

Roosting (shelter) habitat is present for bat species at all three Project sites (existing Dos Osos Pumping Plant, existing Dos Osos Reservoir, and new dual Dos Osos Reservoirs). Roosting bat species typically use buildings, trees, bridges, and rock crevices for roost habitat. Bats use different roosts for different purposes, but common to all are an appropriate temperature regime and protection from predators and undesirable weather. During the summer when bats are most active and raising their young, they frequently use one roost during the day where they sleep and keep their young, and another roost at night for resting and digesting food. Day roosts tend to be cryptic and concealed; night roosts are more open and exposed. Both day roosts and night roosts can be used by multiple species, and fidelity to both kinds of roosts can be very high.

The pallid bat (*Antrozous pallidus*) has a moderate potential to occur at the new dual Dos Osos Reservoirs site, as there is one CNDDDB record of this species within one mile of the site, and mature oak trees may provide roosting habitat for this species. Construction activities may result in the removal or disturbance of hibernation or maternal roost sites, if they are present at the Project sites, due to noise or human traffic, and constitute a potentially significant impact to bat roosting habitat as it may result in direct mortality and reduction in

the reproductive success. Disturbances to roosting habitat of any bat species (not just special-status species bats) are considered potentially significant impacts.

Bats typically forage in and over woodlands, scrub, pasture lands, field margins and water. Suitable foraging habitat is located directly adjacent to the Project sites. However, the pallid bat typically forages one to two miles from its day and night roosts. Because bats are able to travel great distances to forage, potential impacts to bat foraging habitats are considered less than significant.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 35 44, Environmental Requirements. Section 3.8, Protection of Birds Protected under the Migratory Treaty Act and Roosting Bats, of this standard construction specification includes the following provisions:

- Before beginning construction, all Contractor construction personnel are required to attend an environmental training program (provided by EBMUD) of up to one day for site supervisors, foremen and project managers and up to 30 minutes for non-supervisory Contractor personnel. The training program will be completed in person or by watching a video, at a District designated location, conducted by a qualified biologist. The program will discuss all sensitive habitats and sensitive species that may occur within the project work limits, including the responsibilities of Contractor's construction personnel, applicable mitigation measures, and notification requirements. The Contractor is responsible for ensuring that all workers requiring training are identified to the District. The training will include a description of roosting bats, including natural history and habitat, the general protection measures to be implemented to protect the bat species, and a delineation of the limits of the work areas.
- If construction commences between March 1 and July 31, during the bat maternity period, the District will conduct a preconstruction survey for roosting bats within two weeks prior to construction to ensure that no roosting bats will be disturbed during construction.
- If roosting surveys indicate potential occupation by a special-status bat species, and/or identify a large day roosting population or maternity roost by any bat species within 200 feet of a construction work area, a qualified biologist provided by the District will conduct focused day- and/or night-emergence surveys, as appropriate.
- If active maternity roosts or day roosts are found within the project site, or in areas subject to disturbance from construction activities, an avoidance buffers shall be constructed. The buffer size will be determined by the District in consultation with CDFW.
- If a non-breeding bat roost is found in a structure scheduled for modification or removal, the bats shall be safely evicted, under the direction of a qualified biologist provided by the District in consultation with CDFW to ensure that the bats are not injured.
- If preconstruction surveys indicate that no roosting is present, or potential roosting habitat is unoccupied during the construction period, no further action is required. Trees and shrubs within the construction footprint that have been determined to be unoccupied

by roosting bats, or that are located outside the avoidance buffer for active roosting sites may be removed. Roosting initiated during construction is presumed to be unaffected, and no buffer would be necessary.

Because Section 3.8, Protection of Birds Protected under the Migratory Treaty Act and Roosting Bats, of EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, will be implemented as part of the Project, which addresses impacts to roosting bats and includes provisions for preconstruction roosting bat surveys, avoidance of construction during bat roosting season, delineation of avoidance buffer zones, and roosting monitoring during construction, the impact related to roosting bats is less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

- b. No Impact.** No waters or riparian habitats occur on or directly adjacent to the proposed Project sites. Therefore, the Project would not result in any impacts to any waters or riparian habitat identified in local or regional plans, policies, regulations, or by the CDFW or USFWS.

A review of the CNDDDB found that two sensitive natural communities occur within five miles of the new dual Dos Osos Reservoirs site: Northern Maritime Chaparral and Serpentine Bunchgrass. However, neither of these communities occurs at the Project sites as determined during the field reconnaissance by EBMUD biologists. Therefore, the Project would not result in any impacts to any sensitive natural communities identified in local or regional plans, policies, regulations, or by the CDFW or USFWS, and the Project would not result in any impacts to riparian habitat or sensitive natural communities. Impacts to Alameda whipsnake designated critical habitat are discussed in (a), above.

- c. No Impact.** No federally-protected wetlands occur within the Project sites. Therefore, the Project would not result in any impacts on federally-protected wetlands as defined by Section 404 of the Federal Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption or other means.

- d. Less than Significant Impact.**

The existing Dos Osos Pumping Plant and existing Dos Osos Reservoir sites are not located within open space that acts as a wildlife corridor between important habitat units. Both sites are within developed, residential communities. Thus, construction activities at both sites and long-term operation of the Dos Osos Pumping Plant will not interfere substantially with the movement of wildlife species or the use of established wildlife corridors.

The new dual Dos Osos Reservoirs site is located just below a ridgeline, to the east of Siesta Valley on EBMUD watershed lands, which is situated between open space in the Berkeley Hills to the west and protected watershed lands to the east surrounding San Pablo and Briones Reservoirs. Siesta Valley borders the ridge above the Caldecott Tunnel, which acts as an important corridor for wildlife traveling north or south across Highway 24. The Caldecott corridor links Tilden, Wildcat Canyon and Siesta Valley to the north with Sibley,

Huckleberry and Redwood Regional Parks to the south. Land above the Caldecott Tunnel is a significant point of passage for large animals between the two large open space areas described above.

The new dual Dos Osos Reservoirs site falls within open space that contributes to the greater Caldecott wildlife corridor. This area connects outlying populations and supports dispersal through the East Bay Hills. Mountain lions, coyotes, bobcats, gray foxes, black tailed deer, small mammals and reptiles, including the threatened Alameda whipsnake, potentially utilize this habitat. Numerous species may move through the Project sites for daily home-range activities, such as foraging or escape from predators.

However, the new dual Dos Osos Reservoirs construction will not create a barrier to, or substantially interfere with, wildlife movements through the Caldecott corridor. The small size and situation of the Project site make it unlikely to significantly impinge on animal movements. Less than 0.25 acres of grassland will be impacted by the Project. Areas with dense riparian or scrub habitat that provide cover for wildlife movement will not be significantly impacted. Coast live oak woodland canopy will be retained to the extent possible within the short section affected by the paved access road. Human traffic from construction may have a temporary impact on animals dispersing or moving through this area, but this short-term impact would be less than significant, because wildlife movement impacts would be confined to work (daytime) hours, and the new dual Dos Osos Reservoirs site is surrounded by open space outside of the construction and staging area that would be available for wildlife movement around the construction site. After construction, the new dual Dos Osos Reservoirs would be fenced to exclude wildlife, and wildlife movement could occur around the enclosed reservoir site and over the new access road.

Therefore, the Project would not interfere substantially with the movement of any resident or migratory fish or wildlife species or with established resident or migratory wildlife corridors, or impede the use of wildlife nursery sites.

- e. **Less than Significant Impact.** Although EBMUD is not subject to building and land use zoning ordinances (such as tree ordinances) for projects involving the transmission of water (Government Code Section 53091), EBMUD strives to consider and work with host jurisdictions and neighboring communities during project planning and to conform to local environmental protection policies, where feasible and not contrary to its public purpose and responsibilities.

#### City of Orinda General Plan

The City of Orinda General Plan was adopted in 1987. Conservation goals within the General Plan include: maintaining wildlife by preserving habitats and minimizing impacts to creeks and reservoirs. Applicable guiding policies for biological resources listed within the plan include: 1) preservation of rare and endangered species; 2) preservation of valuable wildlife habitats and connecting open space to retain wildlife corridors; 3) preservation of oak woodlands and heritage trees; 4) protection of creeks and riparian areas from pollution,

erosion and siltation; and 5) support the preservation of EBMUD watershed lands and retain existing recreational open space.

The Project will not conflict with any of the applicable guiding policies of the City of Orinda General Plan listed above. Impact discussions a), b) and d) above detail how incorporation of several EBMUD practices and procedures into the Project and implementation of Mitigation Measures BIO-1 through BIO-5 will ensure that impacts to rare and endangered species and valuable wildlife habitats and corridors will be less than significant. Also, regarding preservation of oak woodlands and heritage trees, the new paved access road to the new dual Dos Osos Reservoirs from the existing Dos Osos Reservoir site will entail the removal of approximately five native trees to provide room for the required access road. Coast live oak woodland canopy will be retained to the extent possible within the short section affected by the paved access road. As detailed in the Project Description and above, the Project will plant native trees as screening around the new dual Dos Osos Reservoirs. Potential hydrology and water quality impacts are discussed in Section IX of this MND and detail how incorporation of specific EBMUD practices and procedures into the Project ensures that impacts to creeks and riparian areas from pollution, erosion and siltation would be less than significant. Regarding the preservation of EBMUD watershed lands and existing recreational open space, the new dual Dos Osos Reservoirs will occupy less than a quarter of an acre on watershed lands, preserving watershed lands and open space to the extent possible while allowing for replacement of an aging water facility and improving level of service to potable water customers.

#### Contra Costa County General Plan

The Contra Costa County (CCC) General Plan 2005-2020 was adopted in 2005. The Conservation Element includes goals and policies, developed for resource protection, that address issues regarding the identification, preservation and management of natural resources. Conservation policies of the Conservation Element that are applicable to biological resources for the Project include:

- Resource utilization and development shall be planned within a framework of maintaining a healthy and attractive environment.
- Watersheds, natural waterways, and areas important for the maintenance of natural vegetation and wildlife populations shall be preserved and enhanced.

The new dual Dos Osos Reservoirs site is located on EBMUD watershed lands in the Siesta Valley. The Siesta Valley is designated a significant ecological resource area of CCC in the CCC General Plan, primarily due to the occurrence of special-status species. The vegetation and wildlife goals specific to significant ecological resource areas in the Conservation Element that are applicable to biological resources for Project include:

- To protect ecologically significant lands, wetlands, plant and wildlife habitats.



- To protect rare, threatened and endangered species of fish, wildlife and plants, significant plant communities, and other resources which stand out as unique because of their scarcity, scientific value, aesthetic quality or cultural significance.
- Significant ecological resource areas in CCC shall be identified and designated for compatible low-intensity land uses. Setback zones shall be established around the resource areas to assist in their protection.
- Areas determined to contain significant ecological resources, particularly those containing endangered species, shall be maintained in their natural state and carefully regulated to the maximum legal extent. Acquisition of the most ecologically sensitive properties within CCC by appropriate public agencies shall be encouraged.
- Any development located or proposed within significant ecological resource areas shall ensure that the resource is protected.
- CCC shall utilize performance criteria and standards which seek to regulate uses in and adjacent to significant ecological resource areas.

The Project will not conflict with any of the applicable conservation policies or vegetation and wildlife goals listed above. Impact discussions a), b) and d) above detail how incorporation of several EBMUD practices and procedures into the Project and implementation of Mitigation Measures BIO-1 through BIO-5 will ensure that impacts to rare and endangered species and valuable wildlife habitats and corridors will be less than significant. The Siesta Valley is owned by EBMUD and managed as designated watershed lands as discussed in the following section. The new dual Dos Osos Reservoirs will occupy less than a quarter of an acre on watershed lands, preserving watershed lands and open space to the extent possible while allowing for replacement of an aging water facility and improving level of service to potable water customers.

#### EBMUD East Bay Watershed Master Plan (EBWMP)

The purpose of EBMUD's EBWMP (1995) was to establish long-term management direction for EBMUD-owned lands and reservoirs that would ensure protection of EBMUD's water resources and preserve environmental resources. In 1993, EBMUD's Board of Directors provided seven guiding principles for the EBWMP. These principles guided an integrated planning process that identified resource and land use management goals, objectives, and implementation guidelines. The guiding principles that pertain to biological resources are as follows:

- Ensure protection of the natural, cultural, and historical resources of the watershed on a long-term basis.
- Respect natural resources; sustain and restore populations of native plants and animals and their environments.

The Project will not conflict with any of the applicable guiding principles listed above. Impact discussions a), b) and d) above detail how incorporation of several EBMUD practices and procedures into the Project and implementation of Mitigation Measures BIO-1 through

BIO-5 will ensure that impacts to rare and endangered species and valuable wildlife habitats and corridors will be less than significant

For these reasons, any significant impacts related to potential conflicts with local policies or ordinances regarding biological resources will be less than significant.

- f. Less than Significant Impact.** The existing Dos Osos Pumping Plant and existing Dos Osos Reservoir sites are not located within any adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plan. Thus, short-term construction activities and long-term operations will not conflict with the provisions of any adopted plan.

The new dual Dos Osos Reservoirs site is within the boundaries of the EBMUD Low Effect East Bay Habitat Conservation Plan (2008) (“watershed lands HCP”), which covers 28,000 acres of watershed lands in the San Francisco East Bay Area owned by EBMUD. The watershed lands HCP covers activities that EBMUD must undertake to meet its various obligations as a public entity to provide water service to its customers in the East Bay. EBMUD activities covered under this HCP include programs for water quality, biodiversity, forestry, livestock grazing, agricultural operations, fire and fuel management, recreation and developed trails, and the storage and removal of trench spoils. However, new, permanent construction projects are not covered under the watershed lands HCP. Thus, while the new dual Dos Osos Reservoirs site is located within EBMUD watershed lands, the Project is not covered under the existing watershed lands HCP, because the Project proposes the construction of new dual reservoirs.

The watershed lands HCP covers impacts to special-status species from watershed land management activities such as stockpond management, access road and trail maintenance, and vehicle strikes on EBMUD watershed roadways. The watershed lands HCP covers impacts to two plant and five animal species: pallid manzanita, Santa Cruz tarplant, rainbow trout, CRLF, western pond turtle, pallid bat, and the Alameda whipsnake.

Habitat for the pallid manzanita, Santa Cruz tarplant and rainbow trout is not present within the new dual Dos Osos Reservoirs site. Aquatic habitat for the CRLF and western pond turtle is also not present. There is low probability for dispersal of either species through the Project site due to their distance from pond or riparian habitat and the lack of cover. As described in Table 3.1, pallid bats may be present within mature trees on the Project site; however, the watershed lands HCP’s protection measures solely target the preservation of the nursery colony located in Pinole Valley. Scrub patch identified as core habitat for the Alameda whipsnake under the HCP is located within a few hundred feet of the new dual Dos Osos Reservoirs site. The watershed lands HCP mandates that no more than one percent of core habitat may be lost over the 30-year term of the HCP. The core scrub habitat area will not be impacted as part of the Project.

Impact discussion a) above details how incorporation of several EBMUD practices and procedures into the Project and implementation of Mitigation Measures BIO-2 and BIO-5 will ensure that impacts to roosting bats and the Alameda whipsnake will be less than

significant. Because the proposed Project would conform to the provisions of the existing watershed lands HCP that apply to the new dual Dos Osos Reservoirs site to the extent possible, there will be no impacts to the goals or objectives of the watershed lands HCP.

**V. Cultural Resources**

<b>Would the project:</b>	<b>Potentially Significant Impact</b>	<b>Less Than Significant With Mitigation Incorporated</b>	<b>Less Than Significant Impact</b>	<b>No Impact</b>
a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause a substantial adverse change in the significance of a unique archaeological resource as defined in Section 15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**DISCUSSION**

**a. No Impact.** None of the Project sites are listed on the Federal Register of Historic Places or the California Register of Historical Resources. The nearest listed historic resource is the EBMUD Orinda Water Treatment Plant (WTP) at 190 Camino Pablo in the City of Orinda. EBMUD identifies the Orinda WTP as a historic architectural resource. However, it is approximately 2.5 miles away from any of the Project sites and will not be impacted by the Project.

**b. through d. Less than Significant Impact.** The existing Dos Osos Pumping Plant and Dos Osos Reservoir are both located on developed land that has been subject to prior excavation and disturbance. All project work at the existing Dos Osos Pumping Plant and Dos Osos Reservoir sites will occur in areas that have been previously disturbed. No archaeological, paleontological resources or human remains have been encountered previously at either of these two sites.

EBMUD maintains an Archaeological Resources Geographic Information System (GIS) database that is updated annually with the results of a records search of the Northwest Information Center (NWIC) of the California Historical Resources Information System. A GIS survey of the existing Dos Osos Pumping Plant site, existing Dos Osos Reservoir site, and the new dual Dos Osos Reservoirs site found no recorded occurrences of archaeological resources within the immediate vicinity (half mile) of any of the Project sites. However, the potential for inadvertent discovery of cultural resources is a potential impact.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project,

including EBMUD’s Standard Construction Specification 01 35 44, Environmental Requirements. Section 3.9, Protection of Cultural and Paleontological Resources, of this standard specification, which includes appropriate cultural resources management practices and complies with statutory requirements, outlines the following procedures:

- Preconstruction cultural resources training is required for all construction personnel.
- In the event that a cultural or paleontological resource is identified during preconstruction activities or during excavation for construction activities, all work within 100 feet of the resource shall be halted until a qualified archaeologist can review, identify, and evaluate the resource for its significance. Should the archaeologist determine that an archaeological resource has the potential to be a tribal cultural resource, a Native American monitor shall be retained by EBMUD to monitor work in the area where the tribal cultural resource was discovered.
- Discovery of human remains requires that all construction activities shall immediately cease at the location of discovery and within 100 feet of the discovery. EBMUD shall contact the County Coroner to determine whether or not the remains are Native American. If the remains are determined to be Native American, the Coroner shall contact the Native American Heritage Commission (NAHC). The NAHC shall then identify the person or persons it believes to be the most likely descendant from the deceased Native American, who in turn would make recommendations to EBMUD for the appropriate means of treating the human remains and any associated funerary objects.

Because Section 3.9, Protection of Cultural and Paleontological Resources, of EBMUD’s Standard Construction Specification 01 35 44, Environmental Requirements, has been incorporated into the Project, and it requires implementation of archaeological resources procedures that address the inadvertent discovery of cultural resources and follows statutory law, the Project’s impact related to cultural resources is less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

## VI. Geology and Soils

<b>Would the project:</b>	<b>Potentially Significant Impact</b>	<b>Less Than Significant With Mitigation Incorporated</b>	<b>Less Than Significant Impact</b>	<b>No Impact</b>
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

*Mitigated Negative Declaration*  
*Dos Osos Reservoir Replacement Project*

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Be located on strata 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Be located on expansive soil as defined in Table 18-1-B of the Uniform Building Code 1994, creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Have soils incapable of supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**DISCUSSION**

Geology, geotechnical and seismicity assessments were conducted to evaluate potential environmental impacts for the Project based on review of available geological maps, reports and other related literature (EBMUD, 2015). At the existing Dos Osos Reservoir and Dos Osos Pumping Plant sites, no significant geological or geotechnical impacts from seismic activity, liquefaction, landslides, soil erosion or expansive soils will occur. Both of these sites are previously disturbed sites with existing structures in place. The existing Dos Osos Reservoir will be demolished in place, and the Dos Osos Pumping Plant rehabilitation only involves replacing existing pump units within the existing pumping plant structure. From geotechnical and geological viewpoints, the proposed new dual Dos Osos Reservoirs site is suitable for construction and operation of the new dual reservoirs.

**a. (i. and ii.) Less than Significant Impact.** None of the Project sites are within mapped fault zones. The new dual Dos Osos Reservoirs and associated access road and inlet-outlet pipeline will be designed to meet the latest uniform building code requirements to resist strong ground motions. EBMUD Engineering Standard Practice 512.1, Water Main and Services Design Criteria, and Engineering Standard Practice 550.1, Seismic Design Requirements, dictate basic requirements for water pipelines and design standards for pipelines to withstand seismic hazards. The closest fault zone, the Hayward Fault Zone, is approximately 10,000 feet from the Project sites. Because none of the Project sites are within mapped fault zones and the Project will be built in compliance with EBMUD standard practices, the potential for exposure of people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault or strong seismic ground shaking, is less than significant.

**a. (iii. and iv.) and c. Less than Significant with Mitigation Incorporated.** The soils most susceptible to liquefaction and other sources of seismic-related ground failure such as lateral spreading, are clean, loose, uniformly graded, saturated, fine-grained soils that occur close to the ground surface, usually at depths of less than 50 feet. Based on geologic maps, the new dual Dos Osos Reservoirs site is underlain by weakly consolidated pebble conglomerate, sandstone, claystone and siltstone (including the Orinda and Siesta Formations), which are susceptible to liquefaction, subsidence, lateral spreading and landslides.

Factors determining the liquefaction and lateral spreading potential are soil type, the level and duration of seismic ground motions, the type and consistency of soils, and the depth to groundwater. While there is not an active seismic source located at the new dual Dos Osos Reservoirs site, there are areas of the site that may be composed of loose clayey sand and silty sand that are subject to liquefaction. However, construction of the new dual Dos Osos Reservoirs will require excavation (cut) into the existing slopes, which entails removal of any and all overburden or topsoil within the dual reservoirs' site footprint which would substantially remove all soils with the greatest liquefaction and lateral spreading potential. Because the potential for liquefaction and lateral spreading is high in the areas of loose clayey sand and silty sand at the new dual Dos Osos Reservoirs site, Mitigation Measures GEO-1 and GEO-2 will be implemented by EBMUD to reduce this impact to less than significant levels:

**Mitigation Measure GEO-1:** Incorporate geotechnical investigation of the dual reservoirs site into construction and design requirements.

- EBMUD shall conduct a detailed geotechnical investigation of the new dual Dos Osos Reservoirs site prior to design to evaluate the potential for liquefaction, subsidence, and lateral spreading; extent of landslide deposits; and develop applicable slope stabilization methods, as necessary. The geotechnical investigation may include drilling or trenching to obtain subsurface information and to develop engineering recommendations for foundation and slope design. Recommendations and results from the geotechnical investigation shall be incorporated into design and construction of the Project to comply with current seismic and engineering standards and to mitigate against geologic and seismic hazards. Recommendations shall also be incorporated into the proposed Project specifications for implementation during construction and shall be verified during construction by a licensed civil engineer (EBMUD) who shall monitor construction activities to ensure compliance with the design intent.

**Mitigation Measure GEO-2:** Replace soils (colluvium and alluvium) with high liquefaction potential within the Project site with compacted fill, as deemed necessary in the geotechnical investigation (GEO-1).

- Areas of soils with high liquefaction potential within the grading footprint of the new dual reservoirs will be removed and replaced with engineered, compacted fill material. The full extent of the actual locations and amounts to be removed will be

determined by a licensed civil engineer (EBMUD) based on the review of grading plans, as well as observations made in the field during grading.

The new dual Dos Osos Reservoirs construction would occupy areas underlain at shallow depth by interbedded siltstone and claystone of the Orinda Formation, which is prone to landslides. The new dual Dos Osos Reservoirs site is situated within the “Few Landslides” zone based on the U. S. Geological Survey map, *Summary Distribution of Slides and Earth Flows in Contra Costa County, California*. Also, the foundation report for the existing reservoir (EBMUD, 1954) found the underlying Moraga Formation to be composed of andesite and basalt flows, strong and competent formations, with an overburden or topsoil depth of 1.5 to 2 feet. Because the new dual Dos Osos Reservoirs site is approximately 300 feet from the existing Dos Osos Reservoir site, it is likely that the new dual Dos Osos Reservoirs site is underlain, at least partially, by the Moraga Formation as well as the Orinda and Siesta Formations.

A small anomalous, gently rounded bulge was observed approximately 130 feet upslope of the new dual Dos Osos Reservoirs site, and four small landslides were observed during an aerial photo review within a 1,000-foot radius of the dual reservoirs site on the watershed lands. The potential for further landslides to continue in the future would be a potentially significant impact. Mitigation Measures GEO-3 and GEO-4 will be implemented by EBMUD to reduce this impact to less than significant levels:

**Mitigation Measure GEO-3:** Remove landslide deposits, as deemed necessary in the geotechnical investigation (GEO-1).

- Areas of landslide deposits within the grading footprint shall be removed. Portions of some landslide areas that extend upslope of the new dual Dos Osos Reservoirs site may be left in place; where appropriate, buttress fills and debris catchment areas will be designed and constructed. The extent of actual removals will be determined by a licensed civil engineer (EBMUD) based on the review of grading plans, as well as observations made in the field during grading.

**Mitigation Measure GEO-4:** Implement recommended slope stabilization techniques, as deemed necessary in the geotechnical investigation (GEO-1). Appropriate slope stabilization techniques will be implemented, as recommended by a licensed civil engineer (EBMUD). These techniques include but are not limited to:

- Buttressing or encapsulating landslides using engineered, compacted fill material.
- Performing corrective grading and recompaction with engineered fill in shallow cut or natural areas of the Project site.
- Installing catchment basins and berms to contain potential debris flows that might occur on the steep areas upslope from the proposed reservoirs.
- Installing additional buttress fill at the toe of the existing landslide.
- Installing plate pile slope reinforcement technologies.

- Installing drainage mechanisms, such as subdrains, concrete-lined channels, finger drains, hydroaugers, or gallery drains, within the slopes to move shallow subsurface water away from unstable slopes.

The example slope stabilization techniques outlined above may have the potential to cause environmental impacts. As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project. For potential slope stabilization impacts related to Aesthetics, Air Quality, Biological Resources, Cultural Resources, Greenhouse Gases, Hazards and Hazardous Materials, Hydrology and Water Quality, Noise and Transportation and Traffic, the relevant EBMUD standard practices and procedures discussed in the MND ensure that impacts would be less than significant. The new dual Dos Osos Reservoirs site occurs on federal critical habitat for the Alameda whipsnake, and any slope stabilization techniques have the potential to impact the Alameda whipsnake and other special-status or rare plant and wildlife species. Mitigation Measures BIO-1 through BIO-5 will ensure that any potential biological impacts to special-status species plants, reptiles, mammals and invertebrates with the potential to occur at the Project sites from slope stabilization techniques implemented in Mitigation Measure GEO-4 will be reduced to less than significant levels (Section IV, above). No further mitigation would be required.

In summary, because Mitigation Measures GEO-1 through GEO-4 will be implemented, and these measures require incorporation of a geotechnical investigation of the dual reservoirs site into construction and design requirements and the implementation of all recommendations from the geotechnical investigation (including potential soil replacement, landslide deposit removal, and slope stabilization techniques), impacts resulting from seismic-related ground failure, including liquefaction and seismic-induced landslides, would be reduced to less than significant levels. The Mitigation Monitoring and Reporting Plan (Appendix A) lists the applicable mitigation measures.

- b. Less than Significant Impact.** Construction work will incorporate erosion control measures in accordance with applicable EBMUD practices and procedures.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 35 44, Environmental Requirements. This specification includes provisions for preventing soil erosion.

Section 1.1B of EBMUD's Standard Construction Specification 01 35 44 requires the construction personnel to:

- Dispose of excess material in locations approved by EBMUD consistent with all applicable legal requirements and disposal facility permits.
- Divert or otherwise control surface water and waters flowing from existing projects, structures, or surrounding areas from coming onto work areas. The methods of diversions



or control must be adequate to ensure the safety of stored materials and personnel in the work area. At the completion of work, ditches, dikes, and other ground alterations made by the construction crew must be removed, and ground conditions must be returned to their former condition.

- Maintain construction sites to ensure that drainage from the site will minimize erosion of stockpiled or stored materials and the adjacent native soil material.

Implementation of Section 1.1B, Site Activities, of Standard Construction Specification 01 35 44 ensures that spoils generated by short-term construction activities will be monitored and controlled to minimize soil erosion.

Section 1.3A of Standard Construction Specification 01 35 44 includes submittal of a Storm Water Pollution Prevention Plan (SWPPP) and requires that the SWPPP shall require:

- Measures to be implemented that prevent the discharge of contaminated storm water runoff from the Project site. Contaminants to be addressed include, but are not limited to, soil, sediment, concrete residue, liquid discharges with pH less than 6.5 or greater than 8.5, and chlorine residuals in potable water discharges, and all other contaminants known to exist at the Project site.

Implementation of Section 1.3A, Storm Water Management, of Standard Construction Specification 01 35 44, includes submittal of an SWPPP even if the Project does not require a Construction General Permit (CGP) and requires that the SWPPP shall conform to all State Water Resources Control Board (SWRCB) requirements for a CGP SWPPP. The SWPPP requires implementation of measures to prevent the discharge from the Project site of stormwater contaminated with many potential pollutants, including sediments that could cause erosion. The SWPPP requirements are discussed in more detail in Section IX.

Because Section 1.1B, Site Activities, and Section 1.3A, Storm Water Management, of EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, have been incorporated into the Project, and include erosion control measures that would reduce the potential for short-term soil erosion and loss of topsoil by including provisions for the control of runoff, including diversion and drainage of surface waters from construction sites, the Project impact related to soil erosion or loss of topsoil is less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

- d. No Impact.** None of the Project sites are located on expansive soil.
- e. No Impact.** Septic tanks or alternative wastewater disposal systems are not part of the Project.

## VII. GHG Emissions

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
b) Conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## DISCUSSION

In developing thresholds of significance for air pollutants, BAAQMD considered the emission levels for which a project’s individual emissions would be cumulatively considerable. If a project exceeds the identified significance thresholds, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the region’s existing air quality conditions. Similar to regulated air pollutants, greenhouse gas (GHG) emissions and global climate change also represent cumulative impacts. GHG emissions contribute, on a cumulative basis, to the significant adverse environmental impacts of global climate change.

Climate change impacts may include an increase in extreme heat days, higher concentrations of air pollutants, sea level rise, impacts to water supply and water quality, public health impacts, impacts to ecosystems, impacts to agriculture, and other environmental impacts. No single project could generate enough GHG emissions to noticeably change the global average temperature. However, the combination of GHG emissions from past, present, and future projects contributes substantially to the phenomenon of global climate change and its associated environmental impacts.

The GHG emissions analysis considers both long-term operational and short-term construction impacts associated with the proposed Project. In June 2010, BAAQMD adopted thresholds of significance, to assist in the review of projects subject to CEQA, that were designed to establish the level at which BAAQMD air pollution emissions would cause significant environmental impacts under CEQA. The thresholds were posted on BAAQMD’s website and included in the 2011 CEQA Air Quality Guidelines (updated May 2011). EBMUD considers the 2011 BAAQMD significance thresholds adequate to provide a conservative evaluation of a project’s potential air quality impacts.

- a. **Less than Significant Impact.** BAAQMD’s GHG threshold is defined in terms of CO<sub>2</sub>e, a metric that accounts for the emissions from various GHGs based on their global warming potential. If annual emissions of operational-related GHGs exceed these threshold levels, the proposed Project would result in a cumulatively considerable contribution of GHG emissions and a cumulatively significant impact to global climate change.

The thresholds of significance for long-term, operational-related GHG emissions are:

- For land use development projects, the threshold is compliance with a qualified GHG Reduction Strategy (BAAQMD CEQA Air Quality Guidelines, Section 4.3); or annual emissions less than 1,100 metric tons per year (MT/yr) of carbon dioxide equivalent (CO<sub>2</sub>e); or 4.6 MT CO<sub>2</sub>e/SP/yr (residents + employees). Land use development projects include residential, commercial, industrial, and public land uses and facilities.

As stated in Section III above, long-term operation of the rehabilitated Dos Osos Pumping Plant and the new dual Dos Osos Reservoirs will not emit exhaust or fumes during future operations. The expected annual emission during the project construction period is not expected to exceed or approach the operational threshold of 1,100 metric tons CO<sub>2</sub>e per year. EBMUD's recent analysis of similar and larger projects having a much greater scope of work than the Project determined that the construction phase emissions for those projects would generate between 144 and 2,570 metric tons of CO<sub>2</sub>e per year. Key project elements of the similar and larger projects include: demolition of a 37-million-gallon (MG), open-cut reservoir, construction of a new 3.5 MG concrete tank, construction of a new pumping plant structure, replacement of distribution pipelines, and onsite landscape improvements. Since the scope of the Project is much less than any of these key project elements, the expected annual emission would be less than BAAQMD's operational threshold of 1,100 metric tons CO<sub>2</sub>e per year. Therefore, pumping plant and reservoir operational GHG impacts from the proposed Project would have no impact.

BAAQMD does not have an adopted threshold of significance for construction-related GHG emissions. However, BAAQMD encourages lead agencies to incorporate BMPs to reduce GHG emissions during construction, as feasible and applicable. The BMPs recommended by BAAQMD include using alternative-fueled construction equipment, using local building materials, and recycling or reusing a portion of construction waste or demolition materials.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 35 44, Environmental Requirements. Section 3.4A, Air Quality and Emissions Control, of Standard Construction Specification 01 35 44 requires construction crews to use alternative-fueled construction equipment and to recycle or reuse construction waste or demolition materials to the extent feasible and includes the following:

- The Contractor shall ensure that line power is used instead of diesel generators at all construction sites where line power is available.
- The Contractor shall ensure that for operation of any stationary, compression-ignition engines as part of construction, comply with Section 93115, Title 17, California Code of Regulations, Airborne Toxic Control Measure for Stationary Compression Ignition Engines, which specifies fuel and fuel additive requirements as well as emission standards.
- Fixed temporary sources of air emissions (such as portable pumps, compressors, generators, etc.) shall be electrically powered unless the Contractor submits documentation and receives approval from the Engineer that the use of such equipment is not practical, feasible, or available. All portable engines and equipment units used as part of construction shall be properly registered with the California Air Resources Board or otherwise permitted by the appropriate local air district, as required.
- Contractor shall implement standard air emissions controls such as:
  - Minimize the use of diesel generators where possible.
  - Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes as required by the California Airborne Toxics Control Measure (ATCM) Title 13, Section 2485 of California Code of Regulations. Clear signage shall be provided for construction workers at all access points.
  - Follow applicable regulations for fuel, fuel additives, and emission standards for stationary, diesel-fueled engines.
  - Locate generators at least 100 feet away from adjacent homes and ball fields.
  - Perform regular low-emission tune-ups on all construction equipment, particularly haul trucks and earthwork equipment.
- Contractor shall implement the following measures to reduce GHG emissions from fuel combustion:
  - On-road and off-road vehicle tire pressures shall be maintained to manufacturer specifications. Tires shall be checked and re-inflated at regular intervals.
  - Construction equipment engines shall be maintained to manufacturer specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
  - Demolition debris shall be recycled for reuse to the extent feasible (excluding wood treated with preservatives).

Line power is available at the existing Dos Osos Reservoir site and existing Dos Osos Pumping Plant site; so, electrical power sources will be used as feasible and applicable at those sites. Also, the temporary portable pump used at the Dos Osos Pumping Plant during construction will be electric, as detailed in the Project Description.

Because Section 3.4A, Air Quality and Emissions Control, of EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, has been incorporated into the Project and includes specified air emission control BMPs to minimize short-term construction diesel exhaust emissions, and includes GHG emission controls which would reduce GHG emissions from fuel combustion, the Project construction impacts related to

GHG emissions would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

**b. No Impact.**

Bay Area 2010 CAP

As discussed in Section III, Air Quality, of this MND, the Project would not conflict with the 2010 CAP. General estimated basin-wide, construction-related emissions are included in BAAQMD emission inventory and are not expected to prevent attainment or maintenance of the ozone, particulate matter, and carbon monoxide levels within the Bay Area. Thus, the Project would have no impact and would not conflict with or obstruct implementation of the Bay Area 2010 CAP.

Contra Costa County Climate Action Plan

The Contra Costa County Climate Action Plan was adopted by the County Board of Supervisors in December 2015. The Climate Action Plan identifies specific measures on how the County can achieve a GHG reduction target of 15 percent below baseline levels by the year 2020. In addition to reducing GHG emissions, the Climate Action Plan includes policies and actions to improve public health and provide additional community benefits, and it lays the groundwork for achieving long-term greenhouse reduction goals for 2020 and 2035. These practices and procedures identified in the Action Plan are outside the purview of the proposed Project, because they entail global GHG reduction strategies such as promoting County-wide goals of energy efficiency, renewable energy, reducing transportation emissions, and reducing solid waste.

EBMUD Action Plan

In 2008, EBMUD adopted a climate change objective in EBMUD's Strategic Plan focusing on using resources (economic, environmental, and human) in a responsible manner that meets current needs without compromising the ability to meet future needs. In response to the climate change objective, EBMUD prepared the Climate Change Monitoring and Response Plan (2014)<sup>3</sup> and an Action Plan that provides guidance to inform EBMUD of decisions regarding water supply, water quality, and infrastructure planning. EBMUD's goal is to reduce GHG emissions 50 percent by 2040 (as compared to baseline GHG emissions in year 2000). In 2013, GHG emissions generated by EBMUD were 31,244 MTCO<sub>2e</sub>, which were 31 percent below 2000 GHG emission levels. EBMUD tracks GHG emissions per the California Climate Action Registry protocols.

The EBMUD Action Plan requires certain practices and procedures to help EBMUD achieve the GHG reduction goal. These practices and procedures identified in the Action Plan are outside the purview of the proposed Project, because they provide guidance on EBMUD

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<sup>3</sup> EBMUD. 2014. 2014 Climate Change Monitoring and Response Plan. September 2014.

long-term decisions regarding water supply, water quality, and infrastructure planning. The Project will not conflict with a plan, policy or regulation adopted for the purpose of reducing the emission of GHGs.

### VIII. Hazards and Hazardous Materials

<b>Would the project:</b>	<b>Potentially Significant Impact</b>	<b>Less Than Significant With Mitigation Incorporated</b>	<b>Less Than Significant Impact</b>	<b>No Impact</b>
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Expose people or structures to the risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

## **DISCUSSION**

The Hazards and Hazardous Materials section is based upon a review of existing hazardous material analyses performed for the existing Dos Osos Reservoir and application of findings for pumping plants and reservoirs of similar construction and age to the Project facilities. The purpose of the review was to gather information about the Project sites and surrounding areas and identify conditions indicative of releases or threatened releases of hazardous substances, pollutants and contaminants, petroleum or petroleum products, and controlled substances. These conditions were evaluated to determine if they represent potential impacts at the proposed Project sites.

As used in this section, the term “hazardous material” is defined as any material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. As used in this section, the term “hazardous waste” generally refers to a hazardous material that has been used for its original purpose and is about to be discarded or recycled. In California, a hazardous waste is defined as a waste, or combination of wastes that, due to its quantity, concentration, or physical, chemical, or infectious characteristics, may either:

- Cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or
- Pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

### **a. and b. Less than Significant Impact.**

***Superchlorinated water for pipeline disinfection.*** Superchlorinated water discharges contain chlorine residual concentrations significantly greater than potable water, generally in the range of approximately 100 to 300 milligrams per liter (mg/L). As part of the construction of all new water distribution pipelines, EBMUD disinfects the pipelines with chlorine prior to the pipeline being placed in service. The new 800-foot, 12-inch steel inlet-outlet pipeline connecting the new dual Dos Osos Reservoirs to the existing water distribution system will undergo chlorine disinfection. The planned and unplanned discharge and release of superchlorinated water after testing and disinfection of new pipelines could potentially violate water quality standards or waste discharge requirements.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Section 3.0, Water Quality Protection, of EBMUD’s Environmental Compliance Manual. In accordance with Section 3.0 of the Environmental Compliance Manual, the superchlorinated water produced during testing and disinfection activities at the new dual Dos Osos Reservoirs site would be pumped into a tanker truck, dechlorinated, transported off site, and discharged to EBMUD’s Main Wastewater Treatment Plant. Section 3.0, of the EBMUD Environmental Compliance Manual also requires:

- Placement of BMPs (dechlorination tabs and sediment control) at all affected storm drains, even if there are no planned discharges, since unplanned discharges may occur at any time when working on pipelines containing chlorinated water.
- Photo documentation of all BMP installations.
- Documented calculation of the amount of dechlorination agent necessary to dechlorinate the planned discharge.
- Measurement and recording of the amount of dechlorination agent used.

Because EBMUD has incorporated Section 3.0 of its Environmental Compliance Manual into the Project, superchlorinated water discharges from disinfection of the new pipelines required for the new dual Dos Osos Reservoirs will be captured, treated, and discharged to EBMUD's Main Wastewater Treatment Plant, and any unplanned discharges will be dechlorinated by appropriately sized BMPs placed at all affected storm drains. These components of Section 3.0 will ensure that no water quality standard or waste discharge requirement violations occur as a result of superchlorinated water discharges associated with pipeline disinfection.

In addition, EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, has been incorporated into the Project. Section 1.3A, of EBMUD's Standard Construction Specification 01 35 44, includes submittal of an SWPPP even if the Project does not require a CGP and requires that the SWPPP shall conform to all SWRCB requirements for a CGP SWPPP. The SWPPP requires implementation of measures to prevent the discharge from the Project site of stormwater contaminated with any potential pollutants, including, but not limited to, soil, sediment, concrete residue, liquid discharges with pH less than 6.5 or greater than 8.5, and chlorine residuals in potable water discharges, and all other contaminants known to exist at the Project site. As such, implementation of Section 1.3A, Storm Water Management, will further protect against unplanned discharges of superchlorinated water from the new dual Dos Osos Reservoirs site during stormwater runoff events. The SWPPP requirements are discussed in more detail in Section IX.

In addition, Section 1.3D of EBMUD's Standard Construction Specification 01 35 44 requires submittal of a Spill Prevention and Response Plan which includes methods for preventing and controlling the accidental release of hazardous materials used during Project construction. The plan shall include:

- A list of the hazardous substances proposed for use or generated by the Contractor on site, including petroleum products.
- Measures that will be taken to prevent spills, monitor hazardous substances, and provide immediate responses to spills.
- Phone numbers for notifying appropriate regulatory agencies and EBMUD.
- Identification of spill-related worker and public health and safety issues for each known hazardous substance used on the jobsite.
- Spill control and cleanup procedures.



Implementation of Section 1.3D, Spill Prevention and Response Plan, of EBMUD's Standard Construction Specification 01 35 44, requires a Spill Prevention and Response Plan that will prevent and control the accidental release of superchlorinated water during the disinfection of the new pipelines required for the new dual Dos Osos Reservoirs.

Because Section 3.0, Water Quality Protection, of EBMUD's Environmental Compliance Manual, and Section 1.3D, Spill Prevention and Response Plan, of EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, have been incorporated into the Project, and these practices require controls regarding the discharge of superchlorinated water, controls to prevent the discharge of contaminated storm water runoff from the Project site, and controls to prevent the accidental release of hazardous materials during Project construction, the Project impact related to creation of a significant hazard to the public or the environment through the routine disinfection of potable water pipelines using chlorinated water, a potential violation of water quality standards or waste discharge requirements, is less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

**Lead.** At the existing Dos Osos Pumping Plant site, because only electrical and mechanical equipment upgrades will occur within the existing pumping plant structure, potential impacts from human encounters with lead will not be significant. At the new dual Dos Osos Reservoirs site, because the site is currently undeveloped grasslands, and no occurrences of hazardous materials have been recorded at the site, potential impacts from human encounters with lead will not be significant.

EBMUD completed a Reservoir Materials Assessment Program to determine whether any drinking water reservoirs contained construction materials with hazardous components (EBMUD, 1994). The existing Dos Osos Reservoir was among the reservoirs sampled (both coatings and sealants were tested) – cadmium, lead, mercury, zinc, and polychlorinated biphenyls (PCBs) were not detected. A site investigation in 1996 discovered dispersed deposits of light brown sand over the existing Dos Osos Reservoir site that were found to contain high concentrations of lead. Remediation activities removed lead-contaminated soil from the affected areas. Based on the analytical results of verification samples taken after remediation, concentrations of lead at the site were found to be below the established risk-based goal for Dos Osos Reservoir (250 milligram/kilogram [mg/kg]). This site-specific, remedial goal is more stringent than the 2001 Environmental Protection Agency's Lead Rule which considers lead a hazard when equal to or exceeding 400 parts per million (ppm – equivalent to mg/kg) of lead in bare soil in children's play areas. The report concluded that no significant potential health or ecological risk remained. However, the existing Dos Osos Reservoir site may have been impacted by aerially deposited lead during the last 20 years since the assessment; thus, during the demolition of the existing Dos Osos Reservoir, there is the potential for the accidental release of lead-contaminated soil into the environment which could potentially violate water quality standards or waste discharge requirements.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Section 9.0, Trench Spoils Field Management Practices, of EBMUD's

Environmental Compliance Manual. Section 9.0 of the Environmental Compliance Manual outlines procedures to be followed prior to and during projects to ensure that worker exposure to contaminants of concern is minimized and that spoils are disposed of properly. The Trench Spoils Field Management Practices require project site investigations, collection and analysis of soil, slurry and groundwater samples if deemed necessary by initial site investigations and database record searches, and, depending on the results of the sampling, advance soil, slurry and groundwater disposal arrangements. Implementation of these requirements of Section 9.0 of the Environmental Compliance Manual will ensure that no water quality standard or waste discharge requirement violations occur as a result of accidental release of lead-contaminated soil into the environment.

EBMUD Procedure 711, Hazardous Waste Removal, has been incorporated into the Project, which defines hazardous waste and establishes responsibilities for removal of hazardous wastes from EBMUD facilities. Procedure 711 outlines specific steps and responsibilities for: characterizing the waste and determining what analyses are needed to classify the waste; coordinating waste disposal, reuse or recycling issues; labeling, storing, inspecting, and maintaining inventory records for the waste; and reviewing, signing, and tracking any hazardous waste handling and disposal requirements and hazardous waste manifests. Implementation of Procedure 711 will ensure proper characterization, handling and disposal of any lead-contaminated soil found at the existing Dos Osos Reservoir site.

Section 1.1, Compliance and Intent, of EBMUD's Standard Construction Specification 02 83 13, Lead Hazard Control Activities, has been incorporated into the Project and includes the following provisions for handling, removal and disposal of lead-contaminated materials from the Project site, if found:

- All labor, materials, facilities, equipment, services, employee training and testing, permits and agreements necessary to perform the lead removal shall be in accordance with the latest regulations from the U.S. Environmental Protection Agency (EPA), the Occupational Safety and Health Administration (OSHA), the Air Quality Management District with authority over the project, the State of California EPA (Cal/EPA) Department of Toxic Substance Control, the State of California OSHA (Cal/OSHA), and other federal, state, county, and local agencies.
- During demolition procedures, the Contractor shall protect against contamination of soils, water, adjacent buildings and properties, and the airborne release of hazardous materials and dusts.
- Hazardous materials uncovered during the demolition activities shall be disposed of in an approved manner complying with all applicable federal, state, and local regulations.

Implementation of Section 1.1, Compliance and Intent, of EBMUD's Standard Construction Specification 02 83 13, Lead Hazard Control Activities, requires that handling, removal and disposal of lead-contaminated materials from the existing Dos Osos Reservoir site, if found, would comply with state and federal lead regulations.

EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, has been incorporated into the Project and includes submittal of a Construction and Demolition Waste Disposal Plan (Section 1.3C) that:

- Requires measures for removing, handling, transporting, and disposing of any waste material (except liquid wastes addressed in the Water Control and Disposal Plan).
- Requires a sampling and analytical program for characterizing any waste material, as needed, prior to reuse, recycling or disposal.
- Identifies the disposal method for soil and the approved disposal site and includes written documentation that the disposal site will accept the waste. Prior to disposition of wastes, the Contractor must submit copies to EBMUD of waste profile forms and correspondence between the Contractor and the disposal facility. Prior to disposal of hazardous wastes, the Contractor must submit copies of the waste manifests to EBMUD and provide documentation that the waste hauler is regulated by the state to transport hazardous wastes.

Implementation of Section 1.3C, Construction and Demolition Waste Disposal Plan, of Standard Construction Specification 01 35 44 requires that lead-contaminated soil, if found on the existing Dos Osos Reservoir site, will be disposed of in a manner such that no water quality standard or waste discharge requirement violations occur as a result of accidental release of lead-contaminated soil into the environment.

Section 1.3B, Project Safety and Health Plan, of EBMUD's Standard Construction Specification 01 35 24, Project Safety Requirements, has been incorporated into the Project and requires submittal of a Project Safety and Health Plan if actual, potential, or anticipated hazards include hazardous substances. The Project Safety and Health Plan:

- Designates a Project Health and Safety Representative and a qualified person to take air samples and measurements of known or suspected hazardous materials.
- Includes an Emergency Action Plan in the event of an accident that requires notifying any responsive agencies.

Also, Section 1.4A of EBMUD's Standard Construction Specification 01 35 24, Project Safety Requirements, will be incorporated into the Project and requires that all personnel who, as the result of work on the Project, will likely be exposed to hazardous conditions or hazardous substances at the site have received the appropriate training for the hazards they may encounter. Implementation of Section 1.4A of EBMUD's Standard Construction Specification 01 35 24 ensures that if lead is encountered at the existing Dos Osos Reservoir site, workers will receive appropriate hazardous materials training.

Implementation of Section 1.3C, Construction and Demolition Waste Disposal Plan, of Standard Construction Specification 01 35 24 requires that established health and safety protocols will be followed regarding lead-contaminated soil, if found, at the existing Dos Osos Reservoir site.

In summary, because Section 9.0, Trench Spoils Field Management Practices, of EBMUD's Environmental Compliance Manual, EBMUD's Procedure 711, Hazardous Waste Removal, and EBMUD's Standard Construction Specification 02 83 13, Lead Hazard Control Activities, 01 35 44, Environmental Requirements, and 01 35 24, Project Safety Requirements, have been incorporated into the Project, and these practices require controls regarding the provision of site investigations for potentially hazardous materials, analysis and sampling of hazardous materials, characterization of hazardous materials, handling, containment, and disposal of lead during demolition activities, and incorporates established health and safety procedures regarding anticipated hazards, the Project impact related to creation of a significant hazard to the public or the environment through the accidental release of lead-contaminated soil to the environment during demolition of the existing Dos Osos Reservoir, a potential violation of water quality standards or waste discharge requirements, is less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

**Asbestos.** At the existing Dos Osos Reservoir, roofing materials installed in the late 1950s may contain asbestos. At the existing Dos Osos Pumping Plant, rehabilitation of the pump units within the existing pumping plant building may require the removal and replacement of electrical controls and mechanical equipment. Due to the age of the existing facility, asbestos may be released and encountered during rehabilitation of pumping plant components which could potentially violate water quality standards or waste discharge requirements.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Section 9.0, Trench Spoils Field Management Practices, of EBMUD's Environmental Compliance Manual. Section 9.0 of EBMUD's Environmental Compliance Manual outlines procedures to be followed prior to and during projects to ensure that worker exposure to contaminants of concern is minimized and that spoils are disposed of properly. The Trench Spoils Field Management Practices require project site investigations, collection and analysis of soil, slurry and groundwater samples, if deemed necessary by initial site investigations, and database record searches, and, depending on the results of the sampling, advance soil, slurry and groundwater disposal arrangements. Implementation of requirements of Section 9.0 of the Environmental Compliance Manual will ensure that no water quality standard or waste discharge requirement violations occur as a result of accidental release of asbestos into the environment.

EBMUD's Procedure 711, Hazardous Waste Removal, has been incorporated into the Project, which defines hazardous waste and establishes responsibilities for removal of hazardous wastes from EBMUD facilities. Procedure 711 outlines specific steps and responsibilities for: characterizing the waste and determining what analyses are needed to classify the waste; coordinating waste disposal, reuse or recycling issues; labeling, storing, inspecting, and maintaining inventory records for the waste; and reviewing, signing, and tracking any hazardous waste handling and disposal requirements and hazardous waste manifests. Implementation of Procedure 711 requires proper characterization, handling and disposal of any asbestos encountered at the existing Dos Osos Reservoir and Dos Osos Pumping Plant sites.

Section 1.1, Compliance and Intent, of EBMUD's Standard Construction Specification 02 82 13, Asbestos Control Activities, has been incorporated into the Project and includes the following provisions for handling, removal, containment, and disposal of asbestos-containing materials from the Project sites, if found:

- All labor, materials, facilities, equipment, services, employee training and testing, permits and agreements necessary to perform the asbestos removal shall be in accordance with the latest regulations from the U.S. EPA, OSHA, the Air Quality Management District with authority over the project, the Cal/EPA Department of Toxic Substance Control, Cal/OSHA, and other federal, state, county, and local agencies.
- During demolition procedures, the Contractor shall protect against contamination of soils, water, adjacent buildings and properties, and the airborne release of hazardous materials and dusts.
- Asbestos materials uncovered during the demolition activities shall be disposed of in an approved manner complying with all applicable federal, state, and local regulations.

Implementation of Section 1.1, Compliance and Intent, of EBMUD's Standard Construction Specification 02 82 13, Asbestos Control Activities, requires that handling, removal and disposal of asbestos from the existing Dos Osos Reservoir and Dos Osos Pumping Plant sites, if encountered, will comply with state and federal asbestos regulations.

EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, has been incorporated into the Project and includes submittal of a Construction and Demolition Waste Disposal Plan (Section 1.3C) that:

- Requires measures for removing, handling, transporting, and disposing of any waste material (except liquid wastes addressed in the Water Control and Disposal Plan).
- Includes a sampling and analytical program for characterizing any waste material, as needed, prior to reuse, recycling or disposal.
- Identifies the disposal method for soil and the approved disposal site and includes written documentation that the disposal site will accept the waste. Prior to disposition of wastes, the Contractor must submit copies to EBMUD of waste profile forms and correspondence between the Contractor and the disposal facility. Prior to disposal of hazardous wastes, the Contractor must submit copies of the waste manifests to EBMUD and provide documentation that the waste hauler is regulated by the state to transport hazardous wastes.

Implementation of Section 1.3C, Construction Waste and Disposal Plan, of Standard Construction Specification 01 35 44 requires that asbestos, if encountered on the existing Dos Osos Reservoir and Dos Osos Pumping Plant sites, will be disposed of in a manner such that no water quality standard or waste discharge requirement violations occur as a result of accidental release of asbestos into the environment.

Section 1.3B, Project Safety and Health Plan, of EBMUD's Standard Construction Specification 01 35 24, Project Safety Requirements, has been incorporated into the Project

and includes submittal of a Project Safety and Health Plan if actual, potential, or anticipated hazards include hazardous substances. The Project Safety and Health Plan:

- Designates a Project Health and Safety Representative and a qualified person to take air samples and measurements of known or suspected hazardous materials.
- Includes an Emergency Action Plan in the event of an accident that requires notifying any responsive agencies.

Implementation of Section 1.3B, Project Safety and Health Plan, of EBMUD's Standard Construction Specification 01 35 24 requires that established health and safety protocols will be followed regarding asbestos, if encountered, at the existing Dos Osos Reservoir and Dos Osos Pumping Plant sites.

Also, Section 1.4A of EBMUD's Standard Construction Specification 01 35 24, Project Safety Requirements, will be incorporated into the Project and requires that all personnel who, as the result of work on the Project, will likely be exposed to hazardous conditions or hazardous substances at the site have received the appropriate training for the hazards they may encounter. Implementation of Section 1.4A of EBMUD's Standard Construction Specification 01 35 24 ensures that if asbestos is encountered at the existing Dos Osos Reservoir or Dos Osos Pumping Plant sites, workers will receive appropriate hazardous materials training.

In summary, because Section 9.0, Trench Spoils Field Management Practices, of EBMUD's Environmental Compliance Manual, EBMUD's Procedure 711, Hazardous Waste Removal, and EBMUD's Standard Construction Specifications 02 82 13, Asbestos Control Activities, 01 35 44, Environmental Requirements, and 01 35 24, Project Safety Requirements, have been incorporated into the Project, and these practices achieve controls regarding the provision of site investigations for potentially hazardous materials, analysis and sampling of hazardous materials, characterization of hazardous materials, handling, containment, and disposal of asbestos-containing materials during demolition activities, and incorporate established health and safety procedures regarding anticipated hazards, the Project impact related to creation of a significant hazard to the public or the environment through the accidental release of asbestos to the environment during demolition of the existing Dos Osos Reservoir and rehabilitation of the existing Dos Osos Pumping Plant, a potential violation of water quality standards or waste discharge requirements, is less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

- c. **No Impact.** There are no existing or proposed schools within a quarter-mile of the Project sites.
- d. **No Impact.** The Project sites were checked against regulatory agency databases, such as Cal/EPA Department of Toxic Substances Control online the Envirostor Database which is compiled pursuant to Government Code Section 65962.5, for known hazardous material sites. None of the Project sites are listed on a hazardous materials site list.

- e. **No Impact.** The Project sites are not located within an airport land use plan or within two miles of a public airport, public-use airport or private airstrip.
- f. **No Impact.** The Project sites are not located within the vicinity of a private airstrip.
- g. **No Impact.** The Project would not affect the implementation of any emergency response or evacuation plan, because contract specifications will require the Contractor to maintain emergency roadway access at all times.
- h. **Less than Significant Impact.** All Project sites are located within the California Department of Forestry and Fire Protection's Very High Fire Hazard Severity Zones. All Project sites are located within the Moraga-Orinda Fire District (MOFD) boundaries and would be served by MOFD forces in the event of a fire emergency.

MOFD Station 45 (Battalion Headquarters), located at 33 Orinda Way in the City of Orinda, is approximately two miles east of all three Project sites. The East Bay Regional Park District Fire Department also has a fire station off of Lomas Cantadas, approximately 1.8 miles west of the new dual Dos Osos Reservoirs site, and is available for fire services if requested by the MOFD.

EBMUD emergency white hydrants are located at both the existing Dos Osos Pumping Plant and Dos Osos Reservoir sites. The emergency white hydrant at the existing Dos Osos Reservoir site is approximately 300 feet away from the new dual Dos Osos Reservoirs site. These hydrants will provide emergency water supply in the event of a fire at any of the Project sites. The existing Dos Osos Reservoir has a storage capacity of 0.24 MG and will serve as on-site water source available for fire protection at the existing and new dual Dos Osos Reservoirs sites.

Wildland fire is a potential risk at the existing Dos Osos Reservoir and new dual Dos Osos Reservoirs sites due to the location of these sites where wildlands are adjacent to urbanized areas and where residences are intermixed with wildlands. The use of construction equipment and temporary storage of flammable materials could pose a wildland fire risk in the Project area. The time of greatest fire risk would be during the clearing phase of all Project components, when construction workers and equipment would be near vegetative fuels that could be highly flammable.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 35 24, Project Safety Requirements. Section 1.6, Fire Prevention and Protection, of this standard construction specification mandates that the site will be supplied and maintained with adequate firefighting equipment capable of extinguishing incipient fires. All work would comply with applicable federal, local, and state fire-prevention regulations, including MOFD Ordinance 16-02. MOFD Ordinance 16-02 adopts the 2016 California Fire Code and, by reference, the International Fire Code, 2015 edition, published by the International Code Council. Chapter 49 of the 2016 California Fire Code, Requirements for Wildland-Urban Interface Fire Areas, includes

provisions for wildfire protection building construction, hazardous vegetation and fuel management and defensible space. Chapter 33, Fire Safety during Construction and Demolition, includes requirements for fire reporting, access for firefighting, and portable fire extinguishers.

Because Section 1.6, Fire Prevention and Protection, of EBMUD's Standard Construction Specification 01 35 24, Project Safety Requirements, has been incorporated into the Project and mandates that the site will be supplied and maintained with adequate firefighting equipment capable of extinguishing incipient fires and complies with applicable fire code regulations that include provisions for wildfire protection building construction, hazardous vegetation and fuel management, defensible space, fire reporting, access for firefighting, and portable fire extinguishers, the Project impact related to hazards resulting from wildland fires is less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.



**IX. Hydrology and Water Quality**

<b>Would the project:</b>	<b>Potentially Significant Impact</b>	<b>Less Than Significant With Mitigation Incorporated</b>	<b>Less Than Significant Impact</b>	<b>No Impact</b>
a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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 (i.e., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted?)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on or off site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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 flooding on-site or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Place housing within a 100-year flood plain, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Place within a 100-year flood plain structures which would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
j) Inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## DISCUSSION

- a. Less than Significant Impact.** The two types of potential discharges associated with construction of the Project that could potentially violate water quality standards or waste discharge requirements are: release of potable water discharges (treated water) and stormwater discharges. The release of potable water discharges may impact water quality through the introduction of chlorinated drinking water to existing drainages. The release of stormwater discharges may impact water quality through stormwater runoff encounters with pollutants and contaminants that eventually are released to existing drainages. Both potable water and stormwater discharges have the potential to cause erosion and flooding along drainage pathways and at drainage outfalls. As discussed below, the EBMUD practices and procedures that have been incorporated into the Project ensure that there will be no significant violations of water quality standards or waste discharge requirements.

***Potable Water Discharges.*** Potable water discharges typically fall into three categories: planned, unplanned, and emergency discharges.

Planned Discharges. Planned discharges are those associated with routine operation and maintenance activities that are scheduled in advance to fulfill statutory requirements and/or ensure reliable and safe drinking water. Typically, planned discharges are short-term discharges from definable projects where there are no other reasonable discharge alternatives and where controls may be implemented to minimize the discharge flow rate, volume, duration, and pollutants of concern. Examples of planned discharges include, but are not limited to: cleaning, dewatering/dRAINING, disinfecting, flushing, repairing, installing, and testing of pipelines, reservoirs, and hydrants.

Unplanned Discharges. Unplanned discharges are those caused by non-routine events and are difficult to control due to their unpredictable nature and location. They may be caused by natural factors (e.g., soil movement caused by landslides and fault creep, ground swelling during wet weather, soil corrosivity, pressure surges, or defective materials) or manmade factors (e.g., damage by contractors or other utilities). Examples of unplanned discharges include, but are not limited to: pipeline breaks, service leaks, and overflows of temporary storage vessels.

Emergency Discharges. Emergency discharges are the result of firefighting, unauthorized hydrant openings (accidental damage by vehicles or vandalism), or natural or manmade disasters (e.g., earthquakes, floods, wildfires, accidents, terrorist actions).

Two planned discharges associated with the construction of the Project include the draining of the existing Dos Osos Reservoir, required before demolition, and the discharge of superchlorinated water upon disinfection of new pipelines required for the new dual Dos Osos Reservoirs. Though these are planned discharges, unanticipated discharges (both unplanned and emergency) also have the potential to occur from pipeline breaks and overflows of temporary storage vessels. Both planned and unplanned potable water discharges could potentially violate water quality standards or waste discharge requirements.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Section 3.0, Water Quality Protection, of EBMUD's Environmental Compliance Manual. Section 3.0 of the Environmental Compliance Manual requires EBMUD to comply with the National Pollutant Discharge Elimination System (NPDES) permit issued by the Regional Water Quality Control Board (RWQCB) for planned, unplanned, and emergency discharges from the potable water transmission, storage, and distribution system and requires:

- For planned discharges, EBMUD must submit a site-specific Discharge Plan to the RWQCB at least one week in advance of the discharge with copies to interested parties such as flood control agencies and downstream jurisdictions.
- For unplanned discharges, BMPs (e.g., sediment controls) must be implemented to alleviate the discharge as soon as practicable. EBMUD must also submit an annual report to the RWQCB summarizing the date, address, estimated flow rate, and BMPs implemented for each unplanned discharge.

#### EBMUD BMPs

As described in Section 3.0 of the Environmental Compliance Manual, EBMUD employs both traditional Source Control BMPs (e.g., operational or administrative practices to reduce potential pollutants at the source) and Treatment Control BMPs (e.g., treatment to minimize pollutants prior to discharge) in managing its water discharges.

#### *Source Control BMPs*

Typical source controls include: isolating a system for several days and/or reducing or eliminating chemical dosages to allow the chlorine residual and pH levels to naturally comply with regulatory limits; transferring the contents via a truck to a wastewater treatment plant; and minimizing the flow rate and/or volume to reduce potential sedimentation and erosion effects.

#### *Treatment Control BMPs to Minimize Chlorine Residual*

EBMUD's water treatment process involves the use of chloramine, which is a more stable and longer lasting disinfectant than chlorine alone. Chloramines are required for making the water safe for human consumption but is fatal to fish. Thus, potable water discharges must be dechlorinated before being released into a storm drain or receiving water. EBMUD uses the following BMPs for removing chlorine residual:

- Dechlorination of Potable Water Discharges – Tablet Method. This method describes the dechlorination procedures most typically employed, where sodium sulfite tablets are placed either into diffusers (which are attached to hoses or hydrants) or mesh strips or mats (which are placed into the flow of water).
- Dechlorination of Potable Water Discharges – Liquid Method. This method describes the dechlorination procedures used at new pipeline installations, where calcium

thiosulfate is dripped into the flow of water or used in a batch treatment (e.g., water tanker). The calcium thiosulfate concentration and flow rate must be calculated to ensure that the higher chlorine residual, required by drinking water regulations for disinfection purposes, is adequately treated.

*Treatment Control BMPs to Minimize Sediment*

To prevent erosion and water quality issues from the water discharges and entrainment of sediment into the discharges, EBMUD employs the following sediment control BMPs:

- **Sediment Control during Open Channel Potable Water Discharges.** This method describes procedures to minimize the amount of sediment discharged during open channel discharges. Sediment control is accomplished by placing mesh fabric bags containing pea gravel perpendicular to the flow to form dams between the discharge source and the point at which the discharge flow enters a storm drain or receiving water. The dams cause the flow to slow and pond in front of the bags, allowing some portion of the sediment entrained in the flow to settle out. A dam and filtering mat will be built around and over the first storm drain inlet impacted by the flow, if drain inlets are affected by the discharge.

Because EBMUD has incorporated Section 3.0 of its Environmental Compliance Manual into the Project, planned, unplanned, and emergency potable water discharges required for the Project will be captured, treated, and discharged according to RWQCB requirements, and prescribed EBMUD BMPs will be employed to minimize impacts to water quality at the source of discharge and before release of discharge to the drainage system or downstream waterbodies. Implementation of the requirements of Section 3.0 of the Environmental Compliance Manual will ensure that no water quality standard or waste discharge requirement violations occur as a result of potable water discharges.

In addition, EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, includes submittal of a Water Control and Disposal Plan (Section 1.3B) that includes the following provisions to achieve controls for all liquid discharges:

- The Contractor shall maintain proper control of the discharge at the discharge point to prevent erosion, scouring of bank, nuisance, contamination, and excess sedimentation in the receiving waters.
- The Water Control and Disposal Plan shall include the estimated flow rate and volume of all proposed discharges to surface waters, including discharges to storm drains. All receiving waters shall be clearly identified.
- All drinking water system discharges shall be dechlorinated (e.g., sodium sulfite tablets or liquid calcium thiosulfate) to achieve a total chlorine residual concentration of < 0.1 mg/L measured with a handheld chlorine meter utilizing a U.S. EPA-approved method.

- Effective erosion and sediment controls (e.g., straw wattles, pea gravel filter bags) shall be used to achieve a visual turbidity concentration of  $\leq 100$  nephelometric turbidity unit (NTU) by implementing BMPs which meet EBMUD's minimum standards or better.
- The pH level of any discharges shall not be below 6.5 nor elevated above 8.5. If there is potential for discharges to be below 6.5 or above 8.5, the Contractor shall employ pH adjustment BMPs to ensure discharges are within the range of 6.5 and 8.5. The Contractor shall conduct onsite field measurements for pH per quality assurance and quality control (QA/QC) protocols that conform to U.S. EPA guidelines or procedures approved by the American Water Works Association.
- Describe measures that will be used for containment, handling, treatment (as necessary), and disposal of discharges such as groundwater (if encountered), runoff of water used for dust control, stockpile leachate, tank heel water, wash water, sawcut slurry, test water and construction water or other liquid that has been in contact with any interior surfaces of EBMUD facilities.
- The Contractor shall provide the Engineer with containment, handling, treatment and disposal designs and a sampling and analysis plan for approval before the start of construction.

Implementation of Section 1.3B, Water Control and Disposal Plan, of EBMUD's Standard Construction Specification 01 35 44 requires proper control, treatment and disposal of planned and unplanned liquid discharges. The required components of the Water Control and Disposal Plan of Section 1.3B will ensure that no water quality standard or waste discharge requirement violations occur as a result of potable water discharges.

In addition, Section 1.3D, Spill Prevention and Response Plan, of EBMUD's Standard Construction Specification 01 35 44 requires submittal of a Spill Prevention and Response Plan which includes methods for preventing and controlling the accidental release of hazardous materials used during Project construction. The plan shall include:

- A list of the hazardous substances proposed for use or generated by the Contractor on site, including petroleum products.
- Measures that will be taken to prevent spills, monitor hazardous substances, and provide immediate response to spills.
- Phone numbers for notifying appropriate regulatory agencies and EBMUD.
- Identification of spill-related worker and public health and safety issues for each known hazardous substance used on the jobsite.
- Spill control and cleanup procedures.

Implementation of Section 1.3D, Spill Prevention and Response Plan, of EBMUD's Standard Construction Specification 01 35 44 requires a Spill Prevention and Response Plan that will prevent and control the accidental release of potable water during the construction of the Project.

As described above, the disinfection of new pipelines is considered a planned discharge. Section VIII, Hazards and Hazardous Materials, discusses in great detail how planned and unplanned discharge and release of superchlorinated water after testing and disinfection of new pipelines could potentially violate water quality standards or waste discharge requirements. Incorporation of EBMUD policies and procedures discussed in Impact Discussion Section a) of Section VIII ensures that the Project impact related to creation of a significant hazard to the public or the environment through the routine disinfection of potable water pipelines using chlorinated water is less than significant.

Because Section 3.0, Water Quality Protection, of EBMUD's Environmental Compliance Manual, and Section 1.3B, Water Control and Disposal Plan, and Section 1.3D, Spill Prevention and Response Plan, of EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, have been incorporated into the Project, and the practices require controls regarding the discharge, treatment and disposal of liquid discharges and prevent the accidental release of hazardous materials during Project construction, the Project impact related to potential violation of water quality standards or waste discharge requirements will be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

***Stormwater Discharges.*** Construction activities for the Project, including clearing and grubbing activities, preparation of construction staging areas, and demolition of the existing Dos Osos Reservoir, would expose soils to the elements (wind and rain). Soils may be entrained in stormwater runoff, potentially affecting water quality in receiving waters. Improper use, storage, or disposal of fuels, lubricants, and other chemicals used in construction could also result in the conveyance of contaminants to the receiving waters via stormwater runoff. Thus, stormwater discharges could potentially violate water quality standards or waste discharge requirements.

EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, has been incorporated into the Project. Section 1.3A of EBMUD's Standard Construction Specification 01 35 44 requires submittal of an SWPPP even if the Project does not require a CGP, and requires that the SWPPP shall conform to all SWRCB requirements for a CGP SWPPP. The SWPPP requires:

- Measures (e.g., typical EBMUD source and treatment BMPs described above) to be implemented that prevent the discharge of contaminated stormwater runoff from the Project site. Contaminants to be addressed include, but are not limited to, soil, sediment, concrete residue, liquid discharges with pH less than 6.5 or greater than 8.5, and chlorine residuals in potable water discharges, and all other contaminants known to exist at the Project site.

Because Section 1.3A, Storm Water Management, of EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, has been incorporated into the Project, which requires controls such as dechlorination tablets, rock filter bags and drain inlet protection, to prevent the discharge of contaminated storm water runoff from the Project site, the Project impact related to the release of contaminated stormwater runoff, a

potential violation of water quality standards or waste discharge requirements, will be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

- b. No Impact.** Construction of the new dual Dos Osos Reservoirs would not substantially deplete groundwater supplies or recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level. Stormwater runoff from the new dual Dos Osos Reservoirs site would be discharged via controlled dispersal directly to adjacent vegetated hillslopes and/or an energy dissipater outfall structure on watershed lands. All stormwater runoff from the impervious surfaces (dual Dos Osos Reservoirs roofs and pad) would be allowed to infiltrate over native soils to groundwater supplies or recharge. The new dual Dos Osos Reservoirs overflow and drain lines would connect to the existing Dos Osos Reservoir drain line that outfalls at a rip-rap-protected energy dissipater approximately 450 feet south of the existing Dos Osos Reservoir.

The new access road would be cross-sloped such that stormwater runoff would infiltrate to native soils immediately adjacent to the access road over watershed lands. Thus, all stormwater runoff from proposed impervious surfaces will be available for groundwater recharge, and any surface runoff will be managed to maintain the status quo commensurate with infiltration (from precipitation), groundwater, and recharge.

The rehabilitation of the existing Dos Osos Pumping Plant would result in no net change of impervious surface area. Also, the demolition of the existing Dos Osos Reservoir will decrease the total impervious area at the existing reservoir site by removing the reservoir structure and roof. Thus, no substantive change in infiltration rates or groundwater recharge would occur during operation of the rehabilitated Dos Osos Pumping Plant or at the site of the existing Dos Osos Reservoir post-demolition.

- c. and d. Less than Significant Impact.** The Project sites lie within the San Pablo Creek watershed, which covers about 44 square miles in CCC. The San Pablo Creek watershed includes the cities of Orinda, San Pablo, and Richmond as well as parts of unincorporated CCC. San Pablo Creek originates in the City of Orinda, flows northwest along the eastern edge of the Oakland Hills to the San Pablo Reservoir, and ultimately discharges to the San Francisco Bay near the City of Richmond. The San Pablo Creek watershed supports 10,909 acres of EBMUD-protected watershed land, including the Siesta Valley, Gateway, and Briones watersheds.

No wetlands, waters or riparian areas under the jurisdiction of the U.S. Army Corps of Engineers, RWQCB, or CDFW occur within the Project sites. The San Pablo Creek is approximately 0.9 miles from the new dual reservoirs site. The nearest drainage to the existing Dos Osos Reservoir and new dual Dos Osos Reservoirs sites is an ephemeral unnamed drainage in the headwaters of the San Pablo Creek watershed. This tributary drainage, located approximately 200 feet to the southeast of the existing Dos Osos Reservoir and approximately 500 feet northeast of the new dual Dos Osos Reservoirs site, connects to an underground segment of San Pablo Creek about a mile downstream at the Orinda Village shopping center located on Camino Pablo approximately 2,000 feet north of Highway 24.

**Long-Term Drainage Pattern Impacts.** At the existing Dos Osos Pumping Plant, the rehabilitation of the pumping plant will not alter the existing drainage pattern of the site; therefore, there will be no alteration of the existing drainage pattern of the site area in a manner which would: a) result in substantial erosion or siltation on or off site, or b) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on site or off site.

At the existing Dos Osos Reservoir site, the demolition of the existing reservoir will remove the impervious reservoir and roof from the site and allow infiltration of stormwater into the footprint area of the removed reservoir. Over the remaining impervious portions of the existing reservoir site, no alteration in drainage pattern would occur, and stormwater runoff would continue to be diverted to existing storm drains and outfalls along Los Norrabos; therefore, there will be no alteration of the existing drainage pattern of the site area in a manner which would: a) result in substantial erosion or siltation on or off site, or b) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on site or off site.

At the new dual Dos Osos Reservoirs site, the new dual reservoirs and associated pad would create a new impervious area totaling less than 10,000 square feet. Stormwater runoff from the new dual reservoirs site would be discharged via controlled dispersal directly to adjacent vegetated hillslopes and/or an energy dissipater outfall structure on watershed lands. All stormwater runoff from the impervious surfaces (dual reservoir roofs and pad) would be allowed to infiltrate over native soils. Natural drainage from the surrounding slopes will divert stormwater runoff ultimately to the same existing drainage pathways that conveyed stormwater runoff before dual reservoirs construction; therefore, there will be no alteration of the existing drainage pattern of the site area in a manner which would: a) result in substantial erosion or siltation on or off site, or b) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on site or off site.

**Short-Term Construction Drainage Pattern Impacts.** During construction, short-term alterations in drainage patterns, at both the existing Dos Osos Reservoir and new dual Dos Osos Reservoirs, sites may occur.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 35 44, Environmental Requirements. As described in Impact Discussion a) above, Standard Construction Specification 01 35 44 includes Section 1.3A, which requires submittal of an SWPPP, and Section 1.3B, which requires a Water Control and Disposal Plan.

Because Section 1.3A, Storm Water Management, and Section 1.3B, Water Control and Disposal Plan, of EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, have been incorporated into the Project, and the required SWPPP and Water Control and Disposal Plans require controls regarding liquid discharges and storm water runoff from the Project site, short-term Project impacts related to alteration of the existing drainage pattern of the site area during construction, in a manner which would: a) result in



substantial erosion or siltation on or off site, or b) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on site or off site, will be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

**e. and f. Less than Significant Impact.**

**Long-Term Runoff Impacts.** At the existing Dos Osos Pumping Plant site, rehabilitation of existing pump units within the pumping plant building will not result in any changes outside the building; therefore, no sources or contribution to runoff would be generated which would: a) exceed the capacity of existing or planned storm water drainage systems, or b) provide substantial additional sources of polluted runoff.

At the existing Dos Osos Reservoir site, the demolition of the existing reservoir will remove the impervious reservoir and roof from the site and allow infiltration of stormwater into the footprint area of the removed reservoir; therefore, infiltration would increase, and surface runoff contributions may decrease. Over the remaining impervious portions of the existing reservoir site, no alteration in drainage pattern would occur, and stormwater runoff would continue to be diverted to existing storm drains and outfalls along Los Norrabos; therefore, there will be no creation or contribution of runoff water which would: a) exceed the capacity of existing or planned stormwater drainage systems, or b) provide substantial additional sources of polluted runoff.

At the new dual Dos Osos Reservoirs site, the new dual reservoirs and associated pad would create a new impervious area totaling less than 10,000 square feet. Stormwater runoff from the new dual reservoirs site would be discharged via controlled dispersal directly to adjacent vegetated hillslopes and/or an energy dissipater outfall structure on watershed lands. All stormwater runoff from the impervious surfaces (dual reservoir roofs and pad) would be allowed to infiltrate over native soils. Drainage from the surrounding slopes will divert stormwater runoff ultimately to the same existing natural drainage pathways that conveyed stormwater runoff before dual reservoirs construction. Also, long-term operations at the dual reservoirs site will not include long-term storage of potential pollutants or serve as long-term parking; therefore, there will be no creation or contribution of runoff water which would: a) exceed the capacity of existing or planned stormwater drainage systems, or b) provide substantial additional sources of polluted runoff.

**Short-Term Construction Runoff Impacts.** During construction at the existing Dos Osos Reservoir and new dual Dos Osos Reservoirs sites, short-term creation or contribution of runoff water could occur which would provide substantial additional sources of polluted runoff.

Both sites are situated upslope from the ephemeral tributary drainage (approximately 500 feet northeast of the new dual reservoirs site, as described above), and the accidental release of hazardous materials such as oil, grease, or fuel during construction could potentially degrade surface water quality.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Section 3.0, Water Quality Protection, of the EBMUD Environmental Compliance Manual and EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements.

As described in Impact Discussion a) above, Section 3.0 of the Environmental Compliance Manual describes how EBMUD complies with the NPDES permit issued by the RWQCB for planned, unplanned, and emergency discharges from the potable water transmission, storage, and distribution system. Because Section 3.0, Water Quality Protection, of EBMUD's Environmental Compliance Manual has been incorporated into the Project, planned, unplanned, and emergency potable water discharges required for the Project will be captured, treated, and discharged according to RWQCB requirements.

Also, as described in Impact Discussion a) above, Standard Construction Specification 01 35 44 includes: Section 1.3A which requires submittal of a SWPPP, Section 1.3B which requires a Water Control and Disposal Plan, and Section 1.3D which requires a Spill Prevention and Response Plan. These incorporated components of Specification 01 35 44 will ensure that runoff from the Project would not contribute substantial additional sources of polluted runoff.

In addition to the EBMUD practices and procedures listed above, Section 1.1B, Site Activities, of EBMUD's Standard Construction Specification 01 35 44, has been incorporated into the Project. Section 1.1B states that no debris, including, but not limited to, demolition material, treated wood waste, stockpile leachate, soil, silt, sand, bark, slash, sawdust, asphalt, rubbish, paint, oil, cement, concrete or washings thereof, oil or petroleum products, or other organic or earthen materials from construction activities shall be allowed to enter into storm drains or surface waters or be placed where it may be washed by rainfall or runoff outside the construction limits. Implementation of Section 1.1B will also ensure that runoff from the Project would not contribute substantial additional sources of polluted runoff.

Because EBMUD's Environmental Compliance Manual, Section 3.0, Water Quality Protection, and Standard Construction Specification 01 35 44, Environmental Requirements, has been incorporated into the Project, and the practices achieve controls regarding the discharge, treatment and disposal of liquid discharges, prevent the discharge of contaminated stormwater runoff from the Project site, and prevent the accidental release of hazardous materials during Project construction, the Project impact related to creation or contribution of runoff water which would provide substantial additional sources of polluted runoff will be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

**g. and h. No Impact.** The Project does not propose construction of any housing, and the Project sites are not located within a 100-year flood plain. The nearest mapped 100-year flood plain is approximately one mile away from the Project sites at the San Pablo Creek on the east side of Camino Pablo in Orinda (Federal Emergency Management Agency Flood

Insurance Rate Map [FIRM], Contra Costa County, California FIRM 06013C0264F, June 16, 2009).

- i. Less than Significant Impact.** The Project would not expose people or structures to significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam. Complete and sudden failure of the new dual Dos Osos Reservoirs and associated pipelines due to an earthquake or other condition is extremely unlikely due to the application of standard EBMUD practices, procedures and current engineering standards for reservoir and pipeline construction that dictate engineering requirements for water facilities and seismic design. As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including EBMUD’s Engineering Standard Practice 512.1, Water Main and Services Design Criteria, and Engineering Standard Practice 550.1, Seismic Design Requirements. These two Engineering Standard Practices dictate basic requirements for water pipelines and design standards for pipelines to withstand seismic hazards. Also, design of the new dual reservoirs will adhere to the EBMUD Reservoir Design Guide (EBMUD, 2014), which details design guidelines that apply to the design and construction of steel-bolted tanks. Section 4.2.1, Codes and Design Standards, of EBMUD’s Reservoir Design Guide lists the building codes and design references to be used during construction of steel-bolted tanks to ensure compliance with current engineering practice and standards.

Because the new dual Dos Osos Reservoirs and associated pipelines will be built in compliance with EBMUD standard practices and current engineering practices and building codes, the potential for exposure of people or structures to significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of the reservoirs is less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

Regular inspections would alert EBMUD of potential leakage points, and appropriate remediation would be applied. Steel reservoirs are designed with an underdrain system to monitor leakage.

- j. No Impact.** The Project facilities would not be subject to inundation by seiche or tsunami, as the Project sites are located inland away from large bodies of water.

**X. Land Use and Planning**

<b>Would the project:</b>	<b>Potentially Significant Impact</b>	<b>Less Than Significant With Mitigation Incorporated</b>	<b>Less Than Significant Impact</b>	<b>No Impact</b>
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**DISCUSSION**

- a. No Impact.** The Project will not physically divide an established community, because the rehabilitation of pump units within the existing Dos Osos Pumping Plant occurs within an existing structure, and the existing Dos Osos Reservoir and new dual reservoirs sites lie at the furthest extent of the El Toyonal neighborhood and at the perimeter of EBMUD watershed lands – at the boundary between an established rural residential neighborhood and open hillslopes and grasslands.
- b. Less than Significant Impact.** Pursuant to Government Code Sections 53091(d) and (e), EBMUD is not subject to the building and zoning ordinances of local jurisdictions for projects involving the production, generation, storage, treatment, or transmission of water. Nonetheless, EBMUD strives to consider the regulations and ordinances of local jurisdictions during construction where feasible and not contrary to its public purpose and responsibilities.

The existing Dos Osos Pumping Plant and existing Dos Osos Reservoir are currently located within areas designated for residential use in the City of Orinda’s General Plan. The proposed in-situ rehabilitation of the existing Dos Osos Pumping Plant will not change the current use of the pumping plant site, and demolition of the existing Dos Osos Reservoir will leave the existing reservoir site in a more natural state. As such, rehabilitation of the Dos Osos Pumping Plant and demolition of the Dos Osos Reservoir will not cause any significant impacts related to land use.

The new dual Dos Osos Reservoirs will be located on EBMUD-owned watershed lands designated as “watershed” land use in the Contra Costa County General Plan. The new dual Dos Osos Reservoirs will occupy less than a quarter of an acre on watershed lands, preserving watershed lands and open space to the extent possible while allowing for replacement of an aging water facility and improving level of service to potable water customers. Accordingly, construction of the new dual reservoirs will not cause any significant impacts related to land use.

- c. No Impact.** As discussed in Section IV, Biological Resources, Impact Discussion f), the Project does not conflict with any applicable habitat conservation plan or natural community conservation plan. The new dual reservoirs site is within the boundaries of the watershed lands HCP, which covers 28,000 acres of watershed lands in the San Francisco East Bay Area owned by EBMUD. The watershed lands HCP covers activities that EBMUD must undertake to meet its various obligations as a public entity to provide water service to its customers in the East Bay. EBMUD activities covered under this HCP include programs for water quality, biodiversity, forestry, livestock grazing, agricultural operations, fire and fuel management, recreation and developed trails, and the storage and removal of trench spoils.

**XI. Mineral Resources**

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**DISCUSSION**

- a. **No Impact.** No mineral deposits of economic significance are known to exist within the Project sites.
- b. **No Impact.** There are no locally important mineral resources delineated on a local general plan, specific plan or other land use plan; therefore, the Project will not result in the loss of availability of locally important mineral resources.

**XII. Noise**

Would the project result in:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Would the project result in:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**DISCUSSION**

The noise discussion is based upon the Dos Osos Reservoir Replacement Project Noise and Vibration Analysis conducted by EBMUD (Dos Osos Noise and Vibration Analysis, January 2017). The analysis provides an evaluation of the potential significance of noise- and vibration-related impacts that would result from the Project at sensitive receptors near each Project site. Sensitive receptors are defined as population groups more sensitive to noise that are associated with land uses such as residential areas, hospitals, schools, child care facilities, senior facilities, libraries, churches, and parks. The projected construction and operational noise levels at nearby sensitive receptors were compared against specific noise criteria. Potential construction-related vibration impacts at structures near each Project site area were also analyzed.

For the purposes of this MND and consistent with Appendix G, Environmental Checklist Form, of the CEQA Guidelines, the Project is considered to have a significant impact if it would substantially increase the specific noise levels for adjoining areas. In completing the noise impact analysis, EBMUD considered both local noise ordinances and the speech interference criterion recognized by the EPA and regularly used to assess the significance of potential noise impacts.

**Local Noise Ordinances.** All sensitive receptors to the Project sites are located in the City of Orinda. Project-related noise increases and proposed construction hours were compared to the noise level and construction time limits contained in the City of Orinda’s noise ordinance. Those standards are discussed in section a) and found in Table 3.2, below. The new dual Dos Osos Reservoirs site is located in unincorporated CCC, which does not have a specific noise ordinance. However, Policy 11-8 of the CCC General Plan Noise Element states, “Construction activities shall be concentrated during the hours of the day that are not noise-sensitive for adjacent land uses and should be commissioned to occur during normal work hours of the day to provide relative quiet during the more sensitive evening and early morning periods.” Because the City of Orinda noise ordinance is more stringent than the CCC General Plan policy, only the City of Orinda’s noise ordinance is discussed in the noise impact analysis.

**Speech Interference.** Speech interference is an indicator of impact on typical daytime and evening activities. A speech interference criterion, in the context of impact duration and time of day, was used to identify “substantial” increases in noise from temporary construction activities. Noise peaks generated by construction equipment could result in speech interference in adjacent buildings if the noise level in the interior of the building exceeds 45 to 60 dBA.<sup>4</sup> A typical

<sup>4</sup>Sound is characterized by various parameters that describe the rate of oscillation of sound waves, the distance between successive troughs or crests, the speed of propagation, and the pressure level or energy content of a given sound. The sound pressure level has become the most common descriptor used to characterize the loudness of an

building can reduce noise levels by 25 dBA with the windows closed (U.S. EPA, 1974). This noise reduction could be maintained only on a temporary basis in some cases, since it assumes windows must remain closed at all times. Since a typical building can reduce noise levels by 25 dBA (with closed windows), an exterior noise level of 70 dBA at receptors would maintain an acceptable interior noise environment of 45 dBA.

While EBMUD considered project noise impacts in relation to the City of Orinda noise ordinance, ultimately, EBMUD is not subject to building and land use zoning ordinances for projects involving the transmission of water (Government Code Section 53091). In addition, EBMUD determined that the EPA speech interference criterion described above provides a reasonable threshold for determining the significance of construction noise impacts. For that reason, in the noise analysis, noise levels greater than 70 dBA at receptors would constitute a significant impact.

- a. Less than Significant Impact.** Local noise issues are addressed by assessing consistency with applicable noise ordinance standards or general plan guidelines (if there is no noise ordinance). Noise ordinances regulate such sources as mechanical equipment and amplified sounds as well as prescribe hours of heavy equipment operation. Pursuant to California Government Code Section 53091, EBMUD, as a local agency and utility district serving a broad regional area, is not subject to building and land use zoning ordinances (such as noise ordinances) for projects involving facilities for the production, generation, storage or transmission of water. It is, however, the practice of EBMUD to work with local jurisdictions and neighboring communities during project planning and to conform to local environmental protection policies to the extent feasible. Noise standards from the City of Orinda's noise ordinance are shown in Table 3.2.

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ambient sound. The decibel (dB) scale is used to quantify sound intensity. Because sound can vary in intensity by over one million times within the range of human hearing, a logarithmic loudness scale is used to keep sound intensity numbers at a convenient and manageable level. Since the human ear is not equally sensitive to all sound frequencies within the entire spectrum, human response is factored into sound descriptions in a process called "A-weighting," expressed as "dBA." The dBA, or A-weighted decibel, refers to a scale of noise measurement that approximates the range of sensitivity of the human ear to sounds of different frequencies. On this scale, the normal range of human hearing extends from about 0 dBA to about 140 dBA. A 10-dBA increase in the level of a continuous noise represents a perceived doubling of loudness. The noise levels presented herein are expressed in terms of dBA, unless otherwise indicated.



**TABLE 3.2**  
**City of Orinda Ordinance Time Limits<sup>a</sup> and Noise Standards**

Construction Time Limits			Ordinance Noise Limits for Various Activities in Single-Family Residential Zones (dBA) <sup>b</sup>	
			Day (L <sub>eq</sub> )	Night (L <sub>eq</sub> )
Weekdays	Saturdays	Sundays	7 a.m. to 10 p.m.	10 p.m. to 7 a.m.
8 a.m. to 6 p.m.	10 a.m. to 5 p.m.	Not Allowed	60 (Ldn) <sup>c</sup>	55

- a. *Time Limits: Orinda Municipal Code, Chapter 17.39.3, specifies construction time limits. Operation of heavy construction equipment is not allowed on Saturdays or Sundays. Noise Limits: To account for duration and timing, the Orinda Municipal Code, Chapter 17.15.2 stipulates a noise limit of 60 dBA (Ldn) in residential districts. The ordinance further reduces noise levels by five dB between 10 p.m. and 7 a.m. relative to the 60 Ldn. Noise that is produced for cumulative periods of no more than five minutes and one minute in any hour may exceed the standards by five dB and ten dB, respectively. Presumably, these noise levels would be limited to 65 and 70 dBA, respectively. Title 17, Section 17.39.9 of Orinda Municipal Code, specifies a maximum noise level of 45 dBA for mechanical equipment which is permanently affixed to a structure or on the ground (but not limited to air conditioners, pool equipment, spa equipment), except for emergency backup power generators.*
- b. *Time variations in noise exposure are typically expressed in terms of a steady-state energy level (called L<sub>eq</sub>) that represents the acoustical energy of a given measurement. Because community receptors are more sensitive to unwanted noise intrusion during the evening and at night, for planning purposes, an artificial dBA increment is added to “quiet time” noise levels to form a 24-hour noise descriptor called the day-night noise level Ldn). Ldn adds a 10-dBA penalty to all nighttime noise events between 10:00 p.m. and 7:00 a.m.*
- c. *Construction activities are exempt from the daytime noise limits if they occur during the construction time limits specified in the ordinance.*

In general, the City of Orinda noise ordinance stipulates a noise limit of 60 dBA (Ldn) during the day, and 55 dBA (Ldn) during nighttime hours. However, construction activities that occur Monday through Friday between the hours of 8 a.m. and 6 p.m. and on Saturdays between 10 a.m. and 5 p.m. are exempt from these noise restrictions.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 14 00, Work Restrictions. Section 1.4, Work Hours, of this standard construction specification includes minimization measures for restricting hours of construction equipment, including:

- Work or activity of any kind shall be limited to the hours from 7:00 a.m. to 6:00 p.m. Monday through Friday.
- Truck operations (haul trucks and concrete delivery trucks) will be limited to the daytime hours (between 9:00 a.m. and 4:00 p.m.).

Section 1.8, Construction Noise, of EBMUD’s Standard Construction Specification 01 14 00, Work Restrictions, also includes minimization measures for restricting hours of construction equipment, including:

- Noise-generating activities greater than 90 dBA (impact construction such as concrete

breaking, concrete crushing, tree grinding, etc.) shall be limited to the hours of 8:00 a.m. and 4:00 p.m., Monday through Friday.

During construction, critical water service outages, other emergencies, and special situations requiring work outside of the City of Orinda ordinance construction daytime work hour limits would be rare, and though EBMUD will comply with the City of Orinda ordinance when feasible, EBMUD is not subject to the ordinance (as explained above). In addition, as described in Section d) below, noise generated by construction activities for the Dos Osos Pumping Plant rehabilitation, new dual Dos Osos Reservoirs construction, and existing Dos Osos Reservoir demolition construction phases is not expected to exceed the speech interference criterion. Thus, even at times when construction may occur outside of the construction windows set forth in the City of Orinda ordinance, nearby receptors would not be expected to experience substantial noise-related impacts.

Because Section 1.4, Work Hours, and Section 1.8, Construction Noise, of EBMUD's Standard Construction Specification 01 14 00, Work Restrictions, has been incorporated into the Project, which would limit construction activities work hours, and because construction activity noise levels would fall below the speech interference criterion, impacts would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

- b. Less than Significant Impact.** Vibrations caused by construction activities can be interpreted as energy transmitted in waves through the soil mass. These energy waves generally dissipate with distance from the vibration source (e.g., pile driving or sheetpile driving). Since energy is lost during the transfer of energy from one particle to another, vibration that is distant from a source is usually less perceptible than vibration closer to the source. However, actual human and structure response to different vibration levels is influenced by a combination of factors, including soil type, distance between source and receptor, duration, and the number of perceived events. If great enough, the energy transmitted through the ground as vibration can result in structural damage. To assess the potential for structural damage associated with vibration, the vibratory ground motion in the vicinity of the affected structure is measured in terms of peak particle velocity (PPV) in the vertical and horizontal directions (vector sum), typically in units of inches per second (in/sec). A freight train passing at 100 feet can cause vibrations of 0.1 in/sec PPV, while a strong earthquake can produce vibration in the range of 10 in/sec PPV.

There are no local, state, or federal vibration impact criteria that are applicable to this Project. The California Department of Transportation uses a vibration limit of 0.5 in/sec PPV for buildings designed to modern engineering standards. EBMUD has successfully applied the 0.5 in/sec PPV standard criteria established to evaluate the risk for cosmetic or structural damage to buildings with no known adverse impacts.

Table 3.3 provides a summary of key construction activities by project phase for the new dual Dos Osos Reservoirs and existing Dos Osos Reservoir demolition construction phases and shows the highest vibration levels associated with different phases of the Project, given the distance between the construction sites and the nearest sensitive receptors. Construction

activities at the existing pumping plant site will not include equipment that will generate excessive ground-borne noise levels.

**TABLE 3.3  
Vibration Analysis by Construction Phase<sup>3</sup>**

Project Site	Closest Sensitive Receptor	Construction Hours	Major Construction Activities	Duration (Weeks)	Greatest Vibration at 25 feet (in/sec) <sup>1</sup>	Distance to Closest Sensitive Receptor (feet)	Projected Vibration at Sensitive Receptor during Key Construction Activities (dBA) <sup>2</sup>	Vibration Limit Criterion (in/sec PPV)	Criterion Exceeded?
Existing Reservoir Demolition	9 Los Norrabos	8 a.m. to 6 p.m.	Drain Reservoir	1	NA	160	NA	0.5	No
			Demolish Reservoir Structures	2	0.089		0.005		No
			Demolish Reservoir Concrete	1	0.089		0.005		No
			Demolish Underground Piping	1	0.089		0.005		No
			Backfill	2	0.21		0.013		No
			Site Restoration	1	0.21		0.013		No
New Dual Reservoirs Construction	9 Los Norrabos	8 a.m. to 6 p.m.	Mobilization	1	0.089	340	0.002	0.5	No
			Excavation/Site Work	7	0.089		0.002		No
			Retaining Wall Construction	5	0.089		0.002		No
			Dual Reservoirs Construction	12	0.21		0.004		No
			Landscaping/Site Restoration	5	0.21		0.004		No

1. *Vibration Source Levels for Construction Equipment, Federal Transit Administration. 2006, Transit noise and vibration impact assessment. Table 12-2. FTA-VA-90-1003-06. Office of Planning and Environment, Washington, D.C., prepared by Harris Miller & Hanson, Inc., Burlington, MA.*
2. *Federal Transit Administration. 2006, Transit noise and vibration impact assessment. Section 12.2.1, Quantitative Construction Vibration Assessment Methods. Damage Assessment. FTA-VA-90-1003-06. Office of Planning and Environment, Washington, D.C., prepared by Harris Miller & Hanson, Inc., Burlington, MA.*
3. *Existing Pumping Plant Rehabilitation not listed in table because construction activities at the existing pumping plant site will not include equipment that will generate excessive ground-borne noise (vibration) levels.*

The new dual Dos Osos Reservoirs construction and existing Dos Osos Reservoir demolition Project phases would not result in exposure of persons to or generation of excessive ground-borne vibration levels, because each of the above construction phases are at locations far enough away from any nearby structures to not approach the 0.5 in/sec PPV criterion. None of the Project phases would experience excessive ground-borne noise levels at sensitive receptors near each Project site; therefore, impacts from exposure to or generation of excessive ground-borne vibration or ground-borne noise levels are less than significant.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 35 44, Environmental Requirements. Sections 3.5 and 3.6 of this standard construction specification include the following provisions for vibration control of construction equipment:

- Limit surface vibration to no more than 0.5 in/sec PPV, measured at the nearest residence or other sensitive structure.
- Upon homeowner request, and with homeowner permission, the District will conduct preconstruction surveys of homes, sensitive structures and other areas of concern within 15 feet of continuous vibration-generating activities (i.e., vibratory compaction). Any new cracks or other changes in structures will be compared to preconstruction conditions and a determination made as to whether the proposed Project could have caused such damage. In the event that the Project is demonstrated to have caused the damage, the District will have the damage repaired to the pre-existing condition.
- If impact equipment is used, the Contractor is responsible for taking appropriate measures, including but not limited to the following:
  - Hydraulically or electrically powered equipment shall be used wherever feasible to avoid the noise associated with compressed-air exhaust from pneumatically powered tools. However, where use of pneumatically powered tools is unavoidable, an exhaust muffler on the compressed-air exhaust shall be used (a muffler can lower noise levels from the exhaust by up to about ten dB). External jackets on the tools themselves shall be used, where feasible, which could achieve a reduction of five dB. Quieter procedures, such as drilling rather than impact equipment, will be used whenever feasible.
  - Impact construction, including jackhammers, hydraulic backhoe, concrete crushing/recycling activities, vibratory pile drivers, etc., shall be limited to the daytime hours specified in Standard Construction Specification 01 14 00 (see below for discussion).
  - Erect temporary noise barriers or noise control blankets around the construction site, particularly along areas adjacent to residential buildings.
  - Utilize noise control blankets around the major noise sources to reduce noise emission from the site.
  - Evaluate the feasibility of noise control at the receivers by temporarily improving the noise reduction capability of adjacent buildings by the use of sound blankets for example.
  - Limit the noisiest phases of construction to ten workdays at a time, where feasible.

- Notify neighbors/occupants within 300 feet of Project construction at least 30 days in advance of extreme noise-generating activities about the estimated duration of the activity.
- Noise monitoring shall be conducted periodically during noise-generating activities. Monitoring shall be conducted using a precision sound-level meter that is in conformance with the American National Standards Institute (ANSI) Standard S1.4, Specification for Sound Level Meters. Monitoring results shall be submitted weekly to the Engineer.

Implementation of Sections 3.5, Vibration Control, and 3.6, Noise Control, of Standard Construction Specification 01 35 44 will require vibration controls for construction equipment and provide for preconstruction surveys if necessary.

Section 1.4 of EBMUD's Standard Construction Specification 01 14 00, Work Restrictions, restricts the hours impact construction equipment can be used on site, including the following provisions:

- Work or activity of any kind shall be limited to the hours from 7:00 a.m. to 6:00 p.m. Monday through Friday.
- Truck operations (haul trucks and concrete delivery trucks) will be limited to the daytime hours (between 9:00 a.m. and 4:00 p.m.).

Section 1.8, Construction Noise, of EBMUD's Standard Construction Specification 01 14 00, Work Restrictions, also includes minimization measures for restricting hours of construction equipment, including:

- Noise-generating activities greater than 90 dBA (impact construction such as concrete breaking, concrete crushing, tree grinding, etc.) shall be limited to the hours of 8:00 a.m. and 4:00 p.m., Monday through Friday.

Implementation of Section 1.4, Work Hours, and Section 1.8, Construction Noise, of EBMUD's Standard Construction Specification 01 14 00 will limit construction activity work hours, including the hours when impact equipment can be used on site.

Because the new dual Dos Osos Reservoirs construction and existing Dos Osos Reservoir demolition Project phases are at locations far enough away from any nearby structures such that vibration levels would not exceed the 0.5 in/sec PPV criterion, and because Sections 3.5, Vibration Control, and 3.6, Noise Control, of EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, and Section 1.4, Work Hours, and Section 1.8, Construction Noise, of EBMUD's Standard Construction Specification 01 14 00, Work Restrictions, have been incorporated into the Project, and these sections require vibration controls for construction equipment and restrict construction activity work hours, the Project impacts from exposure to or generation of excessive ground-borne vibration or ground-borne noise levels are less than significant.

- c. No Impact.** No substantial permanent increase in noise is anticipated at the three Project sites. At the new dual Dos Osos Reservoirs site, there are no electrical or mechanical (pumping) facilities; therefore, typical reservoir operations would not generate noise above ambient levels. At the existing Dos Osos Pumping Plant, existing electrical and mechanical equipment within the existing pumping plant building would be upgraded with new electrical and mechanical equipment, and the upgraded equipment would not increase noise levels above existing pumping plant noise levels; noise levels would likely decrease due to advances in electrical and mechanical design since 1968, when the original pumping plant was constructed. The existing Dos Osos Reservoir will be demolished and removed, so no future long-term operations will occur at the existing reservoir site. There is no impact, because the long-term operation of proposed facilities will not change from the current operation and will not produce a substantial permanent increase in ambient noise levels in the Project vicinity above levels existing without the Project.
- d. Less than Significant Impact.** Construction activities associated with the Project would result in temporary noise increases at sensitive receptors near the three Project sites. Sensitive receptors are defined as population groups more sensitive to noise that are associated with land uses such as residential areas, hospitals, schools, child care facilities, senior facilities, libraries, churches, and parks. The projected construction and operational noise levels at nearby sensitive receptors were compared against specific noise criteria.

Construction noise levels would fluctuate at any given receptor depending on the type of project, construction phasing, equipment type/duration of use, distance between the noise source and receptor, and the presence or absence of barriers between the noise source and receptor. Typical construction equipment generates noise levels ranging from about 76 to 88 dBA at a distance of 50 feet from the source, with slightly higher levels of about 88 to 91 dBA for certain types of earthmoving and impact equipment. Table 3.4 indicates noise levels at 25, 50, and 100 feet from the noise source for typical construction equipment with and without controls. In Table 3.4, the “With Controls” columns show noise level estimates that can be obtained by selecting quieter procedures or machines and implementing noise-control features that do not require major redesign or extreme cost (e.g., improved mufflers, equipment redesign, use of silencers, shields, shrouds, ducts, and engine enclosures).

The Dos Osos Noise and Vibration Analysis provides a summary of key construction activities by project phase and shows the highest noise levels associated with different phases of the Project, with and without controls.

**TABLE 3.4  
Noise Levels of Selected Construction Equipment**

Equipment	Noise Level at 25 feet		Noise Level at 50 feet		Noise Level at 100 feet	
	Without Controls	With Controls <sup>a</sup>	Without Controls	With Controls <sup>a</sup>	Without Controls	With Controls <sup>a</sup>
<b>Earthmoving</b>						
Front Loaders	85	81	79	75	73	69
Backhoes	91	81	85	75	79	69
Dozers	86	81	80	75	74	69
Tractors	86	81	80	75	74	69
Graders	91	81	85	75	79	69
Trucks <sup>b</sup>	97	81	91	75	85	69
<b>Materials Handling</b>						
Concrete Mixers	91	81	85	75	79	69
Concrete Pumps	88	81	82	75	76	69
Cranes	89	81	83	75	77	69
Derricks	94	81	88	75	82	69
<b>Stationary</b>						
Pumps	82	81	76	75	70	69
Generators	84	81	78	75	72	69
Compressors	87	81	81	75	75	69
<b>Impact</b>						
Pile Drivers	107	101	101	95	95	89
Rock Drills	104	86	98	80	92	74
Jack Hammers	94	81	88	75	82	69
Pneumatic Tools	92	86	86	80	80	74
<b>Other</b>						
Saws	84	81	78	75	72	69
Vibrators	82	81	76	75	70	69

a. Estimated levels can be obtained by selecting quieter procedures or machines and implementing noise-control features that do not require major redesign or extreme cost (e.g., improved mufflers; equipment redesign; and use of silencers, shields, shrouds, ducts, and engine enclosures).

b. This noise level represents the maximum noise level associated with a single passing truck.

Source: U.S. Environmental Protection Agency, 1971, *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances, NTID300.1*

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 35 44, Environmental Requirements. Section 3.6, Noise Control, of this standard construction specification includes minimization measures for noise control of construction equipment, including:



- Contractor responsibility for taking appropriate measures, including muffling of equipment, selecting quieter equipment, erecting noise barriers, modifying work operations, and other measures as needed to bring construction noise into compliance.
- Each internal combustion engine, used for any purpose on the job or related to the job, shall be equipped with a muffler of a type recommended by the manufacturer. No internal combustion engine shall be operated on the Project without said muffler.
- Best available noise control techniques (including mufflers, intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds) shall be used for all equipment and trucks, as necessary.
- Material stockpiles as well as maintenance/equipment staging and parking areas (all on site) shall be located as far as practicable from residential receptors.

Because these construction equipment noise minimization measures have been incorporated into the Project, the noise levels “*With Controls*” for construction equipment shown in Table 3.4 (above) can be applied to the Project.

When typical construction noise levels with controls are applied to each site, worst-case, project-related, temporary noise increases can be estimated based on the minimum distance to the closest sensitive receptor.

At the new dual Dos Osos Reservoirs site, the nearest sensitive receptor is the residence at 9 Los Norrabos, approximately 340 feet from the site and approximately 40 feet lower in elevation than the bottom elevation of the new dual Dos Osos Reservoirs. At the existing Dos Osos Reservoir site, the nearest sensitive receptor is the residence at 9 Los Norrabos, approximately 160 feet from the existing Dos Osos Reservoir and approximately 30 feet higher in elevation. At the existing Dos Osos Pumping Plant, the nearest sensitive receptor is a residence at 263 El Toyonal approximately 100 feet from the pumping plant at approximately the same elevation as the pumping plant.

The Dos Osos Noise and Vibration Analysis includes a projected construction noise level analysis to determine the expected noise level at the nearest sensitive receptors to Project sites during the loudest construction activity for each phase. The significance of temporary increases in noise levels due to construction activities is evaluated by comparing estimated noise levels with the 70-dBA speech interference criterion. Table 3.5 shows the results of the noise level analysis by construction phase.

**TABLE 3.5  
Noise Level Analysis by Construction Phase**

Project Site	Closest Sensitive Receptor	Construction Hours	Major Construction Activities	Duration (Weeks)	Loudest Projected Noise Level at 50 feet (dBA)	Distance to Closest Sensitive Receptor <sup>2</sup> (feet)	Noise Level Distance Adjustment <sup>3</sup> (dBA)	Projected Noise Level at Sensitive Receptor during Key Construction Activities (dBA)	Exterior Speech Interference Criterion (dBA)	Criterion Exceeded ?
					With Controls <sup>1</sup>					
Existing Reservoir Demolition	9 Los Norrabos	8 a.m. to 6 p.m.	Demolish Reservoir Structures	2	75	160	-10	65	70	No
			Demolish Reservoir Concrete	1	80		-10	70		No
			Demolish Underground Piping	1	75		-10	65		No
			Backfill	2	75		-10	65		No
			Site Restoration	1	75		-10	65		No
New Dual Reservoirs Construction	9 Los Norrabos	8 a.m. to 6 p.m.	Excavation/Site Work	7	75	340	-17	58	70	No
			Retaining Wall Construction	5	75		-17	58		No
			Dual Reservoirs Construction	12	80		-17	63		No
			Landscaping/Site Restoration	5	75		-17	58		No
Existing Pumping Plant Rehabilitation	263 El Toyonal	8 a.m. to 11 a.m. and 6 p.m. to 8 a.m.	Electric Portable Pump <sup>4</sup>	4	40	100	-6	34	70	No

1. U.S. Environmental Protection Agency, 1971, *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances*, NTID300.1

2. Sensitive receptors are defined as population groups more sensitive to noise that are associated with land uses such as residential areas, hospitals, schools, child care facilities, senior facilities, libraries, churches, and parks.

3. There is a noise level drop of 6 dB per doubling of distance. The application of this inverse distance formula calculates the decrease in noise level at a sensitive receptor due to its distance from the noise source.

4. The noise emitted by the electric portable pump with acoustic enclosure will not exceed 65 dBA, measured at a distance of 3 feet (free field) from any side of the enclosure, with two of the three pumps running at 100 percent speed and all doors closed. This requirement translates to a Loudest Projected Noise Level at 50 feet of 40 dBA.

During the construction of the new dual Dos Osos Reservoirs, the loudest projected noise levels occur during the concrete work for the new dual reservoirs and the paving of the new access road to the new dual reservoirs. However, for all phases of the new dual reservoirs construction, the projected noise levels at the nearest sensitive receptors would be below the speech interference criterion of 70 dBA with implementation of Section 3.6, Noise Control, of the Environmental Requirements Standard Construction Specification and the distance from the new dual Dos Osos Reservoirs construction to the nearest sensitive receptor.

During the rehabilitation of the existing Dos Osos Pumping Plant, existing electrical and mechanical equipment within the existing pumping plant building will be removed and replaced with upgraded electrical and mechanical equipment. No heavy construction equipment will be required for this work. However, while pumping plant equipment is being replaced, an electric portable pump with acoustic enclosures will be used to maintain pumping operations for potable water service, as detailed in the Project Description. The projected noise levels, from electric portable pump operation, at the nearest sensitive receptor would be low, 34 dBA, which is below both the speech interference criterion of 70 dBA and the City of Orinda ordinance nighttime noise limit of 55 dBA in single-family residential zones.

During the demolition of the existing Dos Osos Reservoir, the loudest projected noise levels occur during demolition of the existing concrete pad at the reservoir. However, for all phases of the existing reservoir demolition, given the distance from the existing reservoir to the nearest sensitive receptor, incorporation into the Project of Section 3.6, Noise Control, of the Environmental Requirements standard construction specification ensures that the projected noise levels at the nearest sensitive receptors would be below the speech interference criterion of 70 dBA.

There are several factors which EBMUD did not consider quantitatively, but which would likely reduce noise levels associated with the Project below the levels predicted in the Noise and Vibration Analysis. The noise level estimates at nearby sensitive receptors do not account for noise attenuation from existing vegetation, topography or other physical barriers between a site and receptors. The residence at 9 Los Norrabos (the closest sensitive receptor to both the existing Dos Osos Reservoir and the new dual Dos Osos Reservoirs site) is 30 feet higher in elevation than the existing Dos Osos Reservoir and 40 feet lower than the new dual Dos Osos Reservoirs proposed pad elevation, which would further reduce noise levels. Also, vegetation located between a noise source and receptors can act as noise barriers wherever they interrupt direct lines-of-sight, helping to reduce noise levels at sensitive receptors. For the Project, vegetation, including large trees, exists between the existing reservoir and dual reservoirs site and nearby sensitive receptors, thereby, likely reducing noise levels relative to those predicted in the Noise and Vibration Analysis. Finally, at the site of the existing Dos Osos Pumping Plant, the Westside Reservoir, a 0.3 MG, 30-foot-high, 45-foot-diameter, steel water tank, lies directly between the pumping plant and the nearest sensitive receptor, which would also likely reduce noise levels at that receptor relative to those predicted in the Noise and Vibration Analysis. Thus, projected noise levels reported herein may be conservatively high.

Because Section 3.6, Noise Control, of EBMUD’s Standard Construction Specification 01 35 44, Environmental Requirements, has been incorporated into the Project and includes measures for noise control of construction equipment such as mufflers and intake silencers, and given the distance of the sensitive receptors from the construction sites, short-term construction noise levels at nearby sensitive receptors would fall below the speech criterion, and impacts due to short-term construction activities would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

- e. **No Impact.** The Project is not located within an airport land use plan area or within two miles of a public airport or public-use airport.
- f. **No Impact.** The Project is not located in the vicinity of a private airstrip.

**XIII. Population and Housing**

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**DISCUSSION**

- a. **No Impact.** The Project will not induce population growth by making additional water supply available for new development. The Project rehabilitates and replaces existing facilities to improve water quality, operational flexibility, and the reliability of the existing water distribution system for existing customers. The new dual reservoirs together have the same water storage capacity as the existing Dos Osos Reservoir. The existing customers are all within EBMUD’s Ultimate Service Boundary, which is a defined service and growth boundary adopted by EBMUD. Therefore, the Project is not extending growth into a new area or creating momentum for new development within the existing area.
- b. **No Impact.** No housing presently exists at the Project site where the new dual reservoirs and associated access road and inlet-outlet pipeline will be constructed; therefore, the proposed Project would not displace housing.

- c. **No Impact.** The Project would not displace people or housing from the site and no relocation would be required.

**XIV. Public Services**

<b>Would the project:</b>	<b>Potentially Significant Impact</b>	<b>Less Than Significant With Mitigation Incorporated</b>	<b>Less Than Significant Impact</b>	<b>No Impact</b>
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, 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:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iii) Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv) Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
v) Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**DISCUSSION**

- a. **No Impact.** The Project rehabilitates an existing pumping plant, constructs new dual reservoirs, and demolishes an existing reservoir. The Project would not generate a need for any new public facilities (schools, police protection, parks, etc.), because it does not induce population and employment growth. Workers at the Project site are likely to commute from the existing Bay Area labor supply. Any deterioration of existing public facilities resulting from construction (e.g., streets) would be restored by EBMUD to preconstruction condition upon completion of construction. The Project will have a beneficial effect on firefighting capabilities in the area by improving water supply delivery reliability in the neighborhoods surrounding the new dual reservoirs site.

**XV. Recreation**

<b>Would the project:</b>	<b>Potentially Significant Impact</b>	<b>Less Than Significant With Mitigation Incorporated</b>	<b>Less Than Significant Impact</b>	<b>No Impact</b>
a) Would the project 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**DISCUSSION**

- a. **No Impact.** The Project will not generate or attract additional population, as would be associated with residential, commercial or industrial uses; therefore, it would not affect demand for recreational facilities. The Project will not significantly increase the use of the Siesta Valley Recreation Area.
  
- b. **No Impact.** The Project consists exclusively of water distribution system facilities and does not require the construction or expansion of recreational facilities.

**XVI. Transportation/Traffic**

<b>Would the project:</b>	<b>Potentially Significant Impact</b>	<b>Less Than Significant With Mitigation Incorporated</b>	<b>Less Than Significant Impact</b>	<b>No Impact</b>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable congestions management program, including but not limited to level of service demands and travel demand measures, or other standards established by the county congestion management agency for designated roads and or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially increase hazards to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**DISCUSSION**

The Project would not cause long-term effects on transportation or traffic because, once installed, the rehabilitated Dos Osos Pumping Plant and new dual Dos Osos Reservoirs would require maintenance activities similar to those that occur under existing conditions. The Dos Osos Pumping Plant would require maintenance trips approximately once a month. The new dual Dos Osos Reservoirs would require maintenance trips approximately twice a month for facilities and landscaping maintenance.

The duration of the potential significant impacts would be limited to the period of time needed to construct the Project. Existing traffic conditions plus various Project peak-hour traffic conditions were calculated and compared to the CEQA Guidelines significance criteria to determine significance of impacts.

**a. and b. Less than Significant Impact.** The Project would generate short-term increases in

vehicle trips by construction workers and construction vehicles on area roadways. Construction-generated traffic would be temporary and, therefore, would not result in long-term degradation in operating conditions or level of service on Project area roadways.

**Short-Term Construction Impacts.**

The primary offsite impacts from the movement of construction trucks would include a short-term and intermittent lessening of roadway capacities due to the slower movements and larger turning radii of the trucks compared to passenger vehicles. Traffic-generating construction activities would consist of the daily arrival and departure of personnel (construction work crews and supervisory staff), trucks hauling equipment and materials to the worksites, and the hauling of excavated spoils from the sites. The number of construction-related trips would vary among the different phases of the proposed Project and among the tasks needed to complete proposed work at each facility. The analysis of potential impacts associated with each Project phase, below, focuses on the maximum number of daily and hourly vehicle trips during the duration of each component of construction. Impacts during other tasks would be less than those described for the maximum trips.

Table 3.6 contains trip generation estimates for each construction phase of the Project. Potential haul routes include Camino Pablo, El Toyonal, Lomas Cantadas, Grizzly Peak, and Fish Ranch Road.



**TABLE 3.6**  
**Maximum Truck and Vehicle Trips during Construction**

Construction Phase	Approx. Duration (weeks)	Maximum Haul/ Material Trucks (per day)	Maximum Worker Vehicles (per day)	Maximum Hourly One-Way Trips	
Dual Reservoirs Excavation	8	28	8	8	Trucks
				8	Vehicles
Dual Reservoirs Retaining Wall Construction	5	28	10	8	Trucks
				10	Vehicles
Dual Reservoirs Construction	28	28	8	8	Trucks
				8	Vehicles
Dual Reservoirs Landscaping and Security	5	4	6	2	Trucks
				6	Vehicles
Existing Dos Osos Pumping Plant Rehabilitation	26	2	5	1	Trucks
				5	Vehicles
Existing Dos Osos Steel Tank Demolition	5	2	5	1	Trucks
				5	Vehicles
<b>TOTAL DURATION (WEEKS)</b>	<b>77</b>				
<b>MAXIMUM ONE-WAY TRIPS PER HOUR =</b>				<b>8</b>	<b>Trucks</b>
				<b>10</b>	<b>Vehicles</b>

*Notes:*

1. Work schedule: eight-hour workday (typical construction hours Monday-Friday, 8:00 a.m. to 6:00 p.m.).
2. Daily "Haul/Material Trucks" quantities are doubled to calculate daily one-way truck trips. Daily one-way trips account for trucks/vehicles **going to and leaving the Project site on a daily basis**.
3. Maximum hourly one-way truck trips is estimated by averaging the number of trucks **going to and leaving the job site on a daily basis over a seven-hour period (9:00 a.m. to 4:00 p.m.)**.
4. Maximum hourly one-way vehicle trips is estimated by assuming all workers are arriving and leaving the job site in a one-hour period expected to occur during a.m. and p.m. peak hours.
5. Haul trucks average nine cubic yards (CY) per load; concrete trucks average nine CY per load.
6. Excavation is about 5,400 CY. Backfill is about 400 CY. Assume all required backfill amounts will be obtained from excavated quantities stockpiled on site.
7. Assume that all excess soil excavation will be off-hauled.
8. One worker per vehicle.

The trip generation analysis estimates a maximum of eight haul/material trucks per hour during construction; a maximum of ten worker vehicles per hour is estimated by assuming all workers are arriving and leaving the job site in a one-hour period during peak commute hours. This short-term increase in truck and vehicle traffic has the potential to substantially affect roadway traffic flow, especially during peak commute hours.

A Transportation Impact Analysis done for the City of Orinda Housing Element Update<sup>5</sup> by Abrams Associates (City Housing Traffic Study) in 2014 evaluated potential transportation and circulation impacts that would result from the proposed update to the Housing Element of the City's General Plan Update. One alternative examined in the City Housing Traffic Study evaluated the traffic impacts of 108 single-family dwelling units to be located at three sites north of Highway 24 and west of Camino Pablo on critical capacity-controlling intersections. The City Housing Traffic Study intersections included (all signalized intersections):

- Camino Pablo and Santa Maria Way
- Camino Pablo and Orinda Way (El Toyonal)
- Camino Pablo and Camino Sobrante
- Camino Pablo and the Westbound 24 Off-Ramp/Brookwood Road

Since a potential route for construction traffic to the Project area incorporates construction traffic to and from Highway 24 via Camino Pablo and El Toyonal to the Project sites, this alternative of the City Housing Traffic Study provides useful comparison traffic study data with which to analyze Project short-term construction traffic impacts. The study intersections listed above could potentially be impacted by short-term construction traffic generated by the Project.

The basis of analysis for the City Housing Traffic Study was peak-hour level of service calculations for key intersections in the area. The hours identified as the "peak" hours are generally from 7:30 a.m. to 8:30 a.m. and from 5:00 p.m. to 6:00 p.m. for the transportation facilities described. These peak hours were identified as the AM and PM peak hours, respectively.

The City Housing Traffic Study found that even with build-out of the 108 housing units, the critical intersections would continue to operate at acceptable conditions during the weekday AM and PM peak hours. The City Housing Traffic Study found that no significant impacts would result from the proposed City Housing Element of the City's General Plan Update and that no off-site transportation mitigations would be required.

The trip generation analysis for the Project estimates a maximum of eight haul/material trucks per hour during construction and a maximum of ten vehicles per hour during construction (estimating that all workers are arriving and leaving the job site in a one-hour period during peak commute hours). These estimated peak-hour trip generation estimates for the Project are all lower than the estimated peak-hour trip generation estimates for the City Housing Traffic Study; thus, if traffic impacts from the City Housing Element of the General Plan Update were found to be less than significant, short-term construction impacts on traffic from the Project alone can be assumed to be also less than significant at the critical intersections studied.

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<sup>5</sup>City of Orinda Housing Element Update and Associated General Plan and Zoning Ordinance Amendments Transportation Impact Analysis. Abrams Associates Traffic Engineering, Inc., October 14, 2014.

Also, as detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 14 00, Work Restrictions, and Standard Construction Specification 01 55 26, Traffic Regulation.

Specification 01 14 00 limits the work hours for the Project and, as detailed in the Project Description, haul hours will be limited to between 9:00 a.m. and 4:00 p.m. to prohibit haul truck traffic in the El Toyonal neighborhood during commute hours and limit construction haul and material trucks to haul times outside of the peak morning and evening commute hours. By prohibiting haul and material trucks during the peak morning and evening commute hours delineated in the City Housing Traffic Study, potential short-term construction impacts on traffic due to the Project alone will be less than significant.

Section 1.2, Submittals, of EBMUD's Standard Construction Specification 01 55 26, requires a Traffic Control Plan that conforms to the most current version of the Caltrans Manual of Traffic Controls for Construction and Maintenance Work Zones and requires that the Traffic Control Plan include:

- Circulation and detour plans to minimize impacts to local street circulation. Use haul routes minimizing truck traffic on local roadways to the extent possible.
- A description of emergency response vehicle access. If the road or area is completely blocked, preventing access by an emergency responder, a contingency plan must be included.
- Procedures, to the extent feasible, to schedule construction of Project elements to minimize overlapping construction phases that require truck hauling.
- Designated Contractor staging areas for storage of all equipment and materials in such a manner to minimize obstruction to traffic.
- Locations for parking by construction workers.

Implementation of Section 1.2, Submittals, of EBMUD's Standard Construction Specification 01 55 26 requires a Traffic Control Plan which will minimize impacts to local circulation during construction of the Project by requiring circulation and detour plans, providing emergency response vehicle access, and designating parking sites for construction workers.

Because EBMUD's Standard Construction Specifications 01 14 00, Work Restrictions, and 01 55 26, Traffic Regulation, have been incorporated into the Project and include provisions for limiting haul and material trucks during construction to time periods outside of peak commute hours, and require implementation of a Traffic Control Plan that minimizes impacts to traffic circulation, Project impacts related to short-term construction traffic from the Project alone will be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

- c. No Impact.** The Project would not affect air traffic, and no impacts related to air traffic or safety would result.

- d. Less than Significant Impact.** The Project would not result in permanent changes to existing traffic design features or incompatible uses.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Section 1.2, Site Survey and Audio-Video Recording Requirements, of EBMUD's Standard Construction Specification 00 31 21.13, Site Survey Information, which requires ground photography consisting of color audio-video recording of surface features taken along the entire length of the project and including all work and storage areas and all intersecting roadways and shall include:

- Preconstruction Alignment Surveys consisting of an audio-video recording of the complete project alignment and all access and haul routes to be utilized during construction. The survey shall fully document the conditions of pavements and public and private improvements within the limits of work.
- Postconstruction Surveys consisting of postconstruction audio-video recording of the same areas recorded in the Pre-Construction Survey. The Engineer will review post-construction survey findings with the Contractor and develop a complete listing of project site restoration requirements to be accomplished by the Contractor. The Contractor shall be responsible for repairing any damage or defect not documented as existing prior to construction.

Because Section 1.2, Site Survey Audio-Video Recording Requirements, of EBMUD's Standard Construction Specification 00 31 21.13, Site Survey Information, has been incorporated into the Project, and requires the Contractor to provide documentation of both pre- and postconstruction pavement conditions in the project vicinity, and includes provisions for returning all postconstruction roadway conditions to preconstruction conditions, the Project would not result in permanent changes to existing traffic design features. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

- e. Less than Significant Impact.** The Project would not impact emergency access, because contract specifications will require the Contractor to maintain emergency roadway access at all times.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Section 1.2, Submittals, and Section 3.1, General (Execution), of EBMUD's Standard Construction Specification 01 55 26, Traffic Regulation.

Section 1.2, Submittals, requires preparation of a Traffic Control Plan that conforms to the most current version of the Caltrans Manual of Traffic Controls for Construction and Maintenance Work Zones and requires that the Traffic Control Plan include:

- A description of emergency response vehicle access. If the road or area is completely blocked, preventing access by an emergency responder, a contingency plan must be included.

Section 3.1, General (Execution) includes the following provisions:

- For complete road closures, immediate emergency access to be provided if needed to emergency response vehicles.
- A minimum of 12-foot travel lanes must be maintained unless otherwise approved by EBMUD.

Because Section 1.2, Submittals, and Section 3.1, General (Execution), of EBMUD’s Standard Construction Specification 01 55 26, Traffic Regulation, has been incorporated into the Project and requires maintenance of emergency roadway access at all times, Project impacts related to emergency access will be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

- f. No Impact.** Postconstruction and during normal long-term operations of the Dos Osos Pumping Plant and the new dual Dos Osos Reservoirs, the Project would generate less than one vehicle trip per day. Therefore, it would not affect policies supporting alternative transportation.

**XVII. Utilities and Service Systems**

<b>Would the project:</b>	<b>Potentially Significant Impact</b>	<b>Less Than Significant With Mitigation Incorporated</b>	<b>Less Than Significant Impact</b>	<b>No Impact</b>
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in a determination by the wastewater treatment provider which 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

<b>Would the project:</b>	<b>Potentially Significant Impact</b>	<b>Less Than Significant With Mitigation Incorporated</b>	<b>Less Than Significant Impact</b>	<b>No Impact</b>
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**DISCUSSION**

**a. and b. No Impact.** The Project will not generate long-term wastewater that will require treatment. Long-term operation of the pumping plant and reservoir operations will not exceed wastewater treatment requirements of the applicable RWQCB. Construction of the proposed new dual reservoirs and associated inlet-outlet discharge pipeline to connect to existing water pipelines will not cause any significant environmental impacts.

**c. Less than Significant Impact.** At the new dual Dos Osos Reservoirs site, stormwater runoff would be discharged via controlled dispersal directly to adjacent vegetated hillslopes and/or an energy dissipater outfall structure on watershed lands. All stormwater runoff from the impervious surfaces (dual reservoir roofs and pad) would be allowed to infiltrate over native soils. The new access road would be cross-sloped such that stormwater runoff would infiltrate to native soils immediately adjacent to the access road over watershed lands. A new, eight-inch steel overflow drainage pipeline for the new dual Dos Osos Reservoirs will be constructed along the proposed access road alignment to connect to the existing overflow line and ultimately outflow at the existing overflow storm drain outlet 450 feet south of the existing Dos Osos Reservoir.

Environmental impacts from construction of new stormwater drainage facilities at the new dual Dos Osos Reservoirs site will be less than significant, because stormwater runoff from the new drainage facilities will continue to be conveyed along preconstruction drainage patterns and allowed to infiltrate over native soils.

The rehabilitation of the Dos Osos Pumping Plant would not require the construction of any new storm water drainage facilities or the expansion of existing facilities. The demolition of the existing Dos Osos Reservoir would not require the construction of any new storm water drainage facilities or the expansion of existing facilities.

**d. No Impact.** The Project would not result in the need for new additional water supply. The capacity of the rehabilitated Dos Osos Pumping Plant and total storage of the new dual Dos Osos Reservoirs will not change from existing conditions.

**e. No Impact.** The Project will not generate long-term wastewater outputs, as the Project rehabilitates and replaces facilities within a closed, potable water distribution system.

- f. Less than Significant Impact.** The Project will require the excavation of in-place soils. Soils and any solid waste encountered in the excavations will be disposed of at an appropriate landfill identified by the Contractor as required in EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, regarding material off-haul and disposal.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 35 44, Environmental Requirements, Section 1.3C, Construction and Demolition Waste Disposal Plan, of standard construction specification includes submittal of a Construction and Demolition Waste Disposal Plan that:

- Requires measures for removing, handling, transporting, and disposing of any waste material (except liquid wastes addressed in the Water Control and Disposal Plan).
- Includes a sampling and analytical program for characterizing any waste material, as needed, prior to reuse, recycling or disposal.
- Identifies the disposal method for soil and the approved disposal site, and includes written documentation that the disposal site will accept the waste. Prior to disposition of wastes, the Contractor must submit copies to EBMUD of waste profile forms and correspondence between the contractor and the disposal facility. Prior to disposal of hazardous wastes, the contractor must submit copies of the waste manifests to EBMUD and provide documentation that the waste hauler is regulated by the state to transport hazardous wastes.

Because Section 1.3C, Construction and Demolition Waste Disposal Plan, of EBMUD's Environmental Compliance Manual and Standard Construction Specification 01 35 44, Environmental Requirements, have been incorporated into the Project and include provisions for identifying disposal methods for soil and the approved disposal site, Project impacts from potential insufficient landfill capacity for the Project will be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix B) lists the applicable standard specifications language.

The Project will not generate long-term solid waste outputs, as the Project upgrades and replaces facilities within a closed, potable water distribution system.

- g. Less than Significant Impact.** The Project will comply with applicable statutes and regulations related to solid waste.

**XVIII. Mandatory Findings of Significance**

<b>Would the project:</b>	<b>Potentially Significant Impact</b>	<b>Less Than Significant With Mitigation Incorporated</b>	<b>Less Than Significant Impact</b>	<b>No Impact</b>
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Does the project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**DISCUSSION**

**a. Less than Significant with Mitigation Incorporated.** As described above, the Project has the potential to cause significant impacts related to Biological Resources and Geology and Soils. Mitigation measures have been identified to reduce these impacts to less than significant levels. No further mitigation would be required.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project. For impacts related to Aesthetics, Air Quality, Cultural Resources, Greenhouse Gases, Hazards and Hazardous Materials, Hydrology and Water Quality, Noise and Transportation and Traffic, the relevant EBMUD standard practices and procedures discussed in the MND ensure that impacts would be less than significant.

The Project has the potential to significantly reduce the number or restrict the range of a rare or endangered plant or animal including the state- and federally-protected Alameda whipsnake. The new dual Dos Osos Reservoirs site occurs on federal critical habitat for the Alameda whipsnake. Mitigation Measures BIO-1 through BIO-5 will ensure that any potential biological impacts to special-status species plants, reptiles, mammals and invertebrates with the potential to occur at the Project sites will be reduced to less than significant levels (Section IV, above). No further mitigation would be required.



The Project does not have the potential to 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, or eliminate important examples of the major periods of California history or prehistory, as described in the Biological Resources and Cultural Resources environmental discipline sections of the document. No further mitigation would be required.

- b. Less than Significant Impact.** As described in the document above, the Project has the potential to cause significant impacts related to Biological Resources and Geology and Soils. Mitigation measures have been identified that would reduce these impacts to less than significant levels.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project. For impacts related to Aesthetics, Air Quality, Cultural Resources, Greenhouse Gases, Hazards and Hazardous Materials, Hydrology and Water Quality, Noise and Transportation and Traffic, the relevant EBMUD standard practices and procedures discussed in the MND ensure that impacts would be less than significant.

For any impacts to act cumulatively on any past, present, or any reasonably foreseeable projects, these projects would have to have individual impacts in the same resource areas at the same time and in the same localized area as the proposed Project.

In April 2015, the City of Orinda adopted its 2015-2023 Housing Element which assumed a maximum of 108 multi-family residential units to be built by 2023. There is a potential for the proposed Project construction to overlap with completed buildout of the Housing Element. However, because the Project construction haul and material truck traffic will be prohibited from roadways during peak commute hours, the Project proposes a maximum of ten worker vehicles per hour during peak commute hours, and the Project's traffic impacts would be reduced with implementation of EBMUD standard practices and procedures, the additive effect of the Project's construction traffic truck and vehicle trips in addition to proposed Housing Element peak commute hour traffic would not be cumulatively considerable. Also the selection of other alternatives for the City's Housing Element and alternate construction access routes for the proposed Project may result in no overlap of traffic. There are no other known City of Orinda major development projects planned for the near future that would occur in the same localized area as the proposed Project.

One future EBMUD project in the El Toyonal neighborhood that has the potential for cumulatively significant impacts is the Westside Pumping Plant Relocation Project (Westside Project), which consists of relocation of the existing Westside Pumping Plant, located at 20 El Rincon, to the site of the existing Encinal Pumping Plant, located at 4 Madera Lane, and associated pipeline improvements in the El Toyonal neighborhood; it also requires the demolition of the existing Encinal Pumping Plant, demolition of the existing Westside Pumping Plant, and construction of a new Westside Pumping Plant. The Westside Project includes the replacement of the existing Encinal Reservoir at 20 El Rincon with a new Encinal Regulator. The Westside Project will replace aging infrastructure, improve water

quality operations efficiency by removing excess water storage, and improve domestic and emergency water service reliability.

The Westside Project is scheduled to begin construction in 2020 and be completed by 2022; the proposed Project is scheduled to begin construction in 2023 and be completed by 2024. There will be no overlapping of construction timeframes for the two projects. EBMUD does not have any projects near the Project sites that would be implemented at the same time as the proposed Project. Because there are no other projects occurring within the vicinity or at the same time as the proposed Project, and because the Project's impacts would be reduced with implementation of mitigation measures, the Project's contribution to cumulative impacts would not be cumulatively considerable.

- c. **Less than Significant with Mitigation Incorporated.** The Project has the potential to result in substantial adverse effects on human beings or their environment, either directly or indirectly.

As described in the document above, the Project has the potential to cause significant impacts related to Biological Resources and Geology and Soils. Mitigation measures have been identified that would reduce these impacts to less than significant levels.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project. For impacts related to Aesthetics, Air Quality, Cultural Resources, Greenhouse Gases, Hazards and Hazardous Materials, Hydrology and Water Quality, Noise and Transportation and Traffic, the relevant EBMUD standard practices and procedures discussed in the MND ensure that impacts would be less than significant.



Appendix A Mitigation Monitoring and Reporting Plan

Impacts Being Mitigated	Mitigation Measure	Responsible for Implementation	Responsible for Monitoring and/or Enforcement	Timing of Implementation	Applicable Sites		
					Existing Dos Osos PP Site	Existing Dos Osos Reservoir Site	Proposed Dual Reservoirs Site
<b>Biological Resources</b>							
Impact Biology a): Potential to have a substantial adverse effect, either directly or through habitat modifications, on candidate, sensitive, or special-status species in local or regional plans, policies, or regulations or by California Department of Fish and Wildlife (CDFW) or United States Fish and Wildlife Service (USFWS).	<p><b>Mitigation Measure BIO-1: Implement the following avoidance or minimization measures for sensitive plant species:</b></p> <ul style="list-style-type: none"> <li>• Before beginning construction, all Contractor construction personnel are required to attend an environmental training program provided by EBMUD of up to one day for site supervisors, foremen and project managers and up to 30 minutes for non-supervisory Contractor personnel. Contractor construction personnel will receive a CNPS-approved worker environmental awareness training from a qualified biologist (EBMUD). The training will include a description of the sensitive plant species in the Project vicinity, including natural history and habitat, the general protection measures to be implemented to protect the species, and a delineation of the limits of the work areas. Contractor construction personnel will be required to sign documents stating that they understand that take of special-status plant species and destruction or damage of their habitat would be a violation of state and federal law.</li> <li>• Project boundaries will be delineated and flagged prior to construction by the Contractor. All construction activities will be conducted within the delineated Project boundaries.</li> <li>• Staging areas and construction access points will be delineated in the field away from sensitive plant species, and all staging will occur within these designated areas.</li> <li>• In the spring prior to construction, a qualified botanist (EBMUD) will conduct preconstruction sensitive plant surveys in all areas where ground disturbance will occur. Any observed sensitive plant species will be mapped and flagged for avoidance where feasible. EBMUD will notify CDFW or CNPS upon discovery of any sensitive plant species during preconstruction surveys.</li> <li>• Sensitive plant species will be avoided or minimized by limiting ground disturbance where sensitive plants occur.</li> <li>• If California ponysfoot or rayless arnica cannot be avoided, EBMUD will salvage the affected plants and transplant them to a similar habitat in the Project vicinity. The re-established population should achieve a 1:1 ratio (transplanted:re-established) after two years. If this performance criterion cannot be met, an in-lieu fee will be paid to the state CNPS program.</li> <li>• If any additional sensitive plant species are discovered on site that cannot be avoided, the appropriate agencies will be consulted by EBMUD to determine the appropriate species-specific mitigation measures.</li> <li>• Mitigation for sensitive plant species may include: repairing, rehabilitating or restoring the impacted area; preserving in-situ populations on site; or by providing offsite compensation. Offsite compensation may include the permanent protection of an offsite population through a conservation easement or the purchase of mitigation banking credits at a 1:2 ratio.</li> </ul>	EBMUD and EBMUD's Contractor	EBMUD	Prior to and During Construction			X
Impact Biology a): Potential to have a substantial adverse effect, either directly or through habitat modifications, on candidate, sensitive, or special-status species in local or regional plans, policies, or regulations or by California Department of Fish and Wildlife (CDFW) or United States Fish and Wildlife Service (USFWS).	<p><b>Mitigation Measure BIO-2: Implement the following avoidance and minimization measures for the Alameda whipsnake:</b></p> <ul style="list-style-type: none"> <li>• Before beginning construction, all Contractor construction personnel are required to attend an environmental training program provided by EBMUD of up to one day for site supervisors, foremen and project managers and up to 30 minutes for non-supervisory Contractor personnel. Contractor construction personnel will receive USFWS-approved worker environmental awareness training from a qualified biologist (EBMUD). The training will include a description of the Alameda whipsnake, including natural history and habitat, a review of the state and federal listing of the species, the general protection measures to be implemented to protect the Alameda whipsnake, and a delineation of the limits of the work areas. Contractor construction personnel will be required to sign documents stating that they understand that take of listed species and destruction or damage of their habitat would be a violation of state and federal law.</li> <li>• Habitat restoration work may include replanting or seeding with plant species that were removed during construction and removal activities. All wildlife exclusion fencing, as described in Mitigation Measure BIO-</li> </ul>	EBMUD and EBMUD's Contractor	EBMUD	Prior to and During Construction		X	X



Appendix A Mitigation Monitoring and Reporting Plan

Impacts Being Mitigated	Mitigation Measure	Responsible for Implementation	Responsible for Monitoring and/or Enforcement	Timing of Implementation	Applicable Sites		
					Existing Dos Osos PP Site	Existing Dos Osos Reservoir Site	Proposed Dual Reservoirs Site
	<p>5, and construction-related materials will be removed from the site.</p> <ul style="list-style-type: none"> <li>• Seven days and twenty-four hours prior to construction activities, the Project area will be surveyed for Alameda whipsnakes by a qualified biologist (EBMUD). Surveys of the Project area will be repeated if a lapse in construction activity of two weeks or greater occurs.</li> <li>• Movement of heavy equipment will be confined to existing roadways and the construction work areas defined on Project plans to minimize habitat disturbance.</li> <li>• Clearing and grubbing of the construction site will be confined to the minimum area necessary to facilitate construction activities.</li> <li>• If the Alameda whipsnake is observed at the construction site at any time during construction, work will cease immediately until the snake leaves the work area on its own or is relocated outside of the work area by a permit-approved qualified biologist (EBMUD). Any sightings and any incidental take will be reported to the USFWS and CDFW immediately by EBMUD.</li> <li>• A monitoring report of all activities associated with surveys and mitigation for this species will be submitted to the USFWS and CDFW by EBMUD no later than three months after construction is completed. The monitoring report will describe methods and results of any field survey efforts and mitigation measures implemented before, during or after project construction.</li> <li>• To mitigate losses to critical habitat area due to construction of the new dual reservoirs, EBMUD will obtain habitat credits for habitat suitable for the Alameda whipsnake from a conservation or mitigation bank at a minimum ratio of 1:3 (habitat disturbed:habitat credit purchased).</li> <li>• EBMUD will obtain the required permits from USFWS and CDFW for the potential take of Alameda whipsnakes.</li> </ul>						
Impact Biology a): Potential to have a substantial adverse effect, either directly or through habitat modifications, on candidate, sensitive, or special-status species in local or regional plans, policies, or regulations or by California Department of Fish and Wildlife (CDFW) or United States Fish and Wildlife Service (USFWS).	<p><b>Mitigation Measure BIO-3: Implement the following avoidance or minimization measures for the San Francisco dusky-footed woodrat:</b></p> <ul style="list-style-type: none"> <li>• Before beginning construction, all Contractor construction personnel are required to attend an environmental training program provided by EBMUD of up to one day for site supervisors, foremen and project managers and up to 30 minutes for non-supervisory Contractor personnel. Contractor construction personnel will receive USFWS-approved worker environmental awareness training from a qualified biologist (EBMUD). The training will include a description of the San Francisco dusky-footed woodrat, including natural history and habitat, a review of the state and federal listing of the species, the general protection measures to be implemented to protect the San Francisco dusky-footed woodrat, and a delineation of the limits of the work areas. Contractor construction personnel will be required to sign documents stating that they understand that take of listed species and destruction or damage of their habitat would be a violation of state and federal law.</li> <li>• A preconstruction survey will be performed by a qualified biologist (EBMUD) within seven days prior to the start of ground-disturbing activities to identify the locations of active San Francisco dusky-footed woodrat nests within the Project boundary. Any woodrat nests detected will be mapped and flagged for avoidance by the qualified biologist (EBMUD).</li> <li>• If active nests are determined to be present, avoidance measures will be implemented first. Because San Francisco dusky-footed woodrats are year-round residents, avoidance mitigation is limited to restricting Project activities to avoid direct impacts to San Francisco dusky-footed woodrats and their active nests to the extent feasible. A minimum ten-foot buffer should be maintained between Project construction activities and each nest to avoid disturbance. In some situations, a smaller buffer may be allowed if, in the opinion of a qualified biologist (EBMUD), removing the nest would be a greater impact than that anticipated as a result of Project activities.</li> <li>• If an unoccupied woodrat nest is found within the Project site and it cannot be avoided, the nest should be disassembled by hand by a qualified biologist (EBMUD). The nest materials should be relocated off site outside of the wildlife exclusion fencing to prevent rebuilding.</li> <li>• If occupied nests are found within the Project site, and a litter of young is found or suspected, the nest shall be left alone for two to three weeks before a recheck to verify that young are capable of independent survival before proceeding with nest dismantling. Dismantling shall be done by hand, allowing any animals to escape</li> </ul>	EBMUD and EBMUD's Construction Contractor	EBMUD	Prior to and During Construction		X	X



Appendix A Mitigation Monitoring and Reporting Plan

Impacts Being Mitigated	Mitigation Measure	Responsible for Implementation	Responsible for Monitoring and/or Enforcement	Timing of Implementation	Applicable Sites		
					Existing Dos Osos PP Site	Existing Dos Osos Reservoir Site	Proposed Dual Reservoirs Site
	<p>either along existing woodrat trails or toward other available habitat.</p> <ul style="list-style-type: none"> <li>EBMUD will notify CDFW of any nests, unoccupied or occupied, before they are dismantled.</li> </ul>						
Impact Biology a): Potential to have a substantial adverse effect, either directly or through habitat modifications, on candidate, sensitive, or special-status species in local or regional plans, policies, or regulations or by California Department of Fish and Wildlife (CDFW) or United States Fish and Wildlife Service (USFWS).	<p><b>Mitigation Measure BIO-4: Implement the following avoidance or minimization activities for Bridges' coast range shoulderband snails:</b></p> <ul style="list-style-type: none"> <li>Before beginning construction, all Contractor construction personnel are required to attend an environmental training program provided by EBMUD of up to one day for site supervisors, foremen and project managers and up to 30 minutes for non-supervisory Contractor personnel. Contractor construction personnel will receive worker environmental awareness training from a qualified biologist (EBMUD). The training will include a description of the Bridges' coast range shoulderband snail, including natural history and habitat, the general protection measures to be implemented to protect the snail, and a delineation of the limits of the work areas.</li> <li>A preconstruction survey will be performed by a qualified biologist (EBMUD) within 30 days prior to the start of ground-disturbing activities to provide a systematic search of vegetation and objects on site that could provide suitable shelter for the Bridges' coast range shoulderband snail.</li> <li>All live Bridges' coast range shoulderband snails of any life stage that are found during the preconstruction surveys will be captured and moved outside of the Project site, by a qualified biologist (EBMUD), to a site that provides suitable habitat.</li> </ul>	EBMUD and EBMUD's Construction Contractor	EBMUD	Prior to and During Construction			X
Impact Biology a): Potential to have a substantial adverse effect, either directly or through habitat modifications, on candidate, sensitive, or special-status species in local or regional plans, policies, or regulations or by California Department of Fish and Wildlife (CDFW) or United States Fish and Wildlife Service (USFWS).	<p><b>Mitigation Measure BIO-5: Wildlife exclusion fencing.</b></p> <ul style="list-style-type: none"> <li>Orange barrier safety fencing will be installed along the outside edges of the construction area to prevent encroachment of construction personnel and equipment beyond the approved limits of work.</li> <li>Wildlife exclusion fencing constructed of plywood, plastic, aluminum or silt fence material will be installed around the work area. Wildlife exclusion fencing will be buried (six inches, minimum) to prevent animals passing under the fence and will be high enough (three feet, minimum) to prevent amphibians, reptiles and small mammals from passing over the fence. Overhanging vegetation will be trimmed. The fencing will be inspected and repaired regularly. The fencing will be removed only when all construction equipment is removed from the Project site.</li> <li>The fencing will contain one-way egress for special-status species to the extent possible.</li> <li>A barrier to prevent special-status species from entering the work site will be placed across access roads into and out of the work site at the end of the day to prevent animal movement into the site overnight.</li> </ul>	EBMUD and EBMUD's Construction Contractor	EBMUD	Prior to Construction		X	X
<b>Geology and Soils</b>							
Impact Geology Soils a): Potential to expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving: rupture of a known earthquake fault; strong seismic ground shaking; seismic-related ground failure; or landslides.	<p><b>Mitigation Measure GEO-1: Incorporate geotechnical investigation of the dual reservoirs site into construction and design requirements.</b></p> <p>EBMUD shall conduct a detailed geotechnical investigation at the new dual reservoirs site prior to design to evaluate the potential for liquefaction, subsidence, and lateral spreading; extent of landslide deposits; and develop applicable slope stabilization methods, as necessary. This geotechnical investigation may include drilling or trenching to obtain subsurface information and to develop engineering recommendations for foundation and slope design. Recommendations and results from the geotechnical investigation shall be incorporated into design and construction of the Project to comply with current seismic and engineering standards and to mitigate against geologic and seismic hazards. Recommendations shall also be incorporated into the proposed Project specifications for implementation during construction and shall be verified during construction by a licensed civil engineer (EBMUD) who shall monitor construction activities to ensure compliance with the design intent.</p>	EBMUD	EBMUD Civil Engineer	Prior to Project Design and Project Construction Specifications			X
Impact Geology Soils c): Potential to be located on a geologic unit or soil that is unstable or that would become unstable as a result of the proposed project, and potentially could result in on-site or off-site landslides, lateral spreading, subsidence (i.e., settlement), liquefaction,							





Appendix A Mitigation Monitoring and Reporting Plan

Impacts Being Mitigated	Mitigation Measure	Responsible for Implementation	Responsible for Monitoring and/or Enforcement	Timing of Implementation	Applicable Sites		
					Existing Dos Osos PP Site	Existing Dos Osos Reservoir Site	Proposed Dual Reservoirs Site
or collapse.							
Impact Geology Soils a): Potential to expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving: rupture of a known earthquake fault; strong seismic ground shaking; seismic-related ground failure; or landslides.  Impact Geology Soils c): Potential to be located on a geologic unit or soil that is unstable or that would become unstable as a result of the proposed project, and potentially could result in on-site or off-site landslides, lateral spreading, subsidence (i.e., settlement), liquefaction, or collapse.	<b>Mitigation Measure GEO-2: Replace soils (colluvium and alluvium) with high liquefaction potential at the new dual reservoirs site within the Project site with compacted fill, as deemed necessary in the geotechnical investigation (MM GEO-1).</b>  Areas of soils with high liquefaction potential within the grading footprint of the new dual reservoirs will be removed and replaced with engineered, compacted fill material. The full extent of the actual locations and amounts to be removed will be determined by a licensed civil engineer (EBMUD) based on the review of grading plans, as well as observations made in the field during grading.	EBMUD Contractor	EBMUD Civil Engineer and Construction Inspector	During Construction			X
Impact Geology Soils a): Potential to expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving: rupture of a known earthquake fault; strong seismic ground shaking; seismic-related ground failure; or landslides.  Impact Geology Soils c): Potential to be located on a geologic unit or soil that is unstable or that would become unstable as a result of the proposed project, and potentially could result in on-site or off-site landslides, lateral spreading, subsidence (i.e., settlement), liquefaction, or collapse.	<b>Mitigation Measure GEO-3: Remove landslide deposits, as deemed necessary in the geotechnical investigation (MM GEO-1).</b>  Areas of landslide deposits within the grading footprint shall be removed. Portions of some landslide areas that extend upslope of the new dual reservoirs site may be left in place; where appropriate, buttress fills and debris catchment areas will be designed and constructed. The extent of actual removals will be determined by a licensed civil engineer (EBMUD) based on the review of grading plans, as well as observations made in the field during grading.	EBMUD Contractor	EBMUD Civil Engineer and Construction Inspector	During Construction			X
Impact Geology Soils a): Potential to expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving: rupture of a known earthquake fault; strong seismic ground shaking; seismic-related ground failure; or landslides.  Impact Geology Soils c): Potential to be located on a geologic unit or soil that is unstable or that would become unstable as a result of the proposed project, and potentially could result in on-site or off-site landslides, lateral spreading, subsidence (i.e., settlement), liquefaction, or collapse.	<b>Mitigation Measure GEO-4: Implement recommended slope stabilization techniques at the new dual reservoirs site, as deemed necessary in the geotechnical investigation (MM GEO-1). Appropriate slope stabilization techniques will be implemented, as recommended by a licensed civil engineer (EBMUD). These techniques include but are not limited to:</b> <ul style="list-style-type: none"> <li>• Buttrressing or encapsulating landslides using engineered, compacted fill material;</li> <li>• Performing corrective grading and recompaction with engineered fill in shallow cut or natural areas of the Project site;</li> <li>• Installing catchment basins and berms to contain potential debris flows that might occur on the steep areas upslope from the proposed reservoirs;</li> <li>• Installing additional buttress fill at the toe of the existing landslide;</li> <li>• Installing plate pile slope reinforcement technologies;</li> <li>• Installing drainage mechanisms, such as subdrains, concrete-lined channels, finger drains, hydroaugers, or gallery drains, within the slopes to move shallow subsurface water away from unstable slopes.</li> </ul>	EBMUD Contractor	EBMUD Civil Engineer and Construction Inspector	During Construction			X



Appendix B EBMUD Practices and Procedures Monitoring and Reporting Plan

Impact Area	EBMUD Practices and Procedures <sup>1</sup>	Responsible for Implementation	Responsible for Monitoring and/or Enforcement	Timing of Implementation	Applicable Sites		
					Existing Dos Osos PP Site	Existing Dos Osos Reservoir Site	Proposed Dual Reservoirs Site
<b>Aesthetics</b>							
Aesthetics a): Potential to have a substantial adverse effect on a scenic vista.	<p><b>EBMUD’s Standard Construction Specification 01 35 44, Environmental Requirements</b></p> <p>3.7 Protection of Native and Non-Native Protected Trees</p> <p>A. Tree Protection</p> <ol style="list-style-type: none"> <li>1. Locations of trees to be removed and protected are shown in the construction drawings. Pruning and trimming shall be completed by the Contractor and approved by the Engineer. Pruning shall adhere to the Tree Pruning Guidelines of the International Society of Arboriculture.</li> <li>2. Erect exclusion fencing five feet outside of the drip lines of trees to be protected. Erect and maintain a temporary minimum 3-foot high orange plastic mesh exclusion fence at the locations as shown in the drawings. The fence posts shall be six-foot minimum length steel shapes, installed at 10-foot minimum on center, and be driven into the ground. The Contractor shall be prohibited from entering or disturbing the protected area within the fence except as directed by the Engineer. Exclusion fencing shall remain in place until construction is completed and the Engineer approves its removal.</li> <li>3. No grading, construction, demolition, trenching for irrigation, planting or other work, except as specified herein, shall occur within the tree protection zone established by the exclusion fencing installed shown in the drawings. In addition, no excess soil, chemicals, debris, equipment or other materials shall be dumped or stored within the tree protection zone.</li> <li>4. In areas that are within the tree drip line and outside the tree protection zone that are to be traveled over by vehicles and equipment, the areas shall be covered with a protective mat composed of a 12-inch thickness of wood chips or gravel and covered by a minimum ¾-inch-thick steel traffic plate. The protective mat shall remain in place until construction is completed and the Engineer approves its removal.</li> <li>5. Tree roots exposed during trench excavation shall be pruned cleanly at the edge of the excavation and treated to the satisfaction of a certified arborist provided by the District.</li> <li>6. Any tree injured during construction shall be evaluated as soon as possible by a certified arborist provided by the District, and replaced as deemed necessary by the certified arborist.</li> </ol>	EBMUD and EBMUD’s Contractor	EBMUD	Prior to and During Construction		X	X

<sup>1</sup> In EBMUD Standard Specifications, “District” = EBMUD; “Engineer” = EBMUD Engineer; “Contractor” = EBMUD Contractor; “Work” = Scope of Work for the Project



Appendix B EBMUD Practices and Procedures Monitoring and Reporting Plan

Impact Area	EBMUD Practices and Procedures <sup>1</sup>	Responsible for Implementation	Responsible for Monitoring and/or Enforcement	Timing of Implementation	Applicable Sites		
					Existing Dos Osos PP Site	Existing Dos Osos Reservoir Site	Proposed Dual Reservoirs Site
<b>Air Quality</b>							
Air Quality b): Potential to violate any air quality standard or contribute substantially to an existing or projected air quality violation.	<p><b>EBMUD’s Standard Construction Specification 01 35 44, Environmental Requirements</b></p> <p>1.3 (E) Dust Control and Monitoring Plan</p> <ol style="list-style-type: none"> <li>1. Submit a plan detailing the means and methods for controlling and monitoring dust generated by demolition and other work on the site for the Engineer’s acceptance prior to any work at the jobsite. The plan shall comply with all applicable regulations including but not limited to the Bay Area Air Quality Management District (BAAQMD) visible emissions regulation and Public Nuisance Rule. The plan shall include items such as mitigation measures to control fugitive dust emissions generated by construction activities. The Plan shall outline best management practices for preventing dust emissions, provide guidelines for training of employees, and procedures to be used during operations and maintenance activities. The plan shall also include measures for the control of paint overspray generated during the painting of exterior surfaces. The plan shall detail the equipment and methods used to monitor compliance with the plan. The handling and disposal of water used in compliance with the Dust Control Plan shall be addressed in the Water Control and Disposal Plan.</li> </ol> <p>1.3 (I) Tuneup Logs</p> <ol style="list-style-type: none"> <li>1. The Contractor shall submit a log of required tuneups for all construction equipment, particularly haul and delivery trucks, on a quarterly basis for review.</li> </ol> <p>3.3 (B) Dust Control</p> <ol style="list-style-type: none"> <li>1. Contractor shall implement all necessary dust control measures, including but not limited to the following:               <ol style="list-style-type: none"> <li>a. Water and/or coarse rock all dust-generating construction areas as directed by Engineer to reduce the potential for airborne dust from leaving the site.</li> <li>b. Cover all haul trucks entering/leaving the site and trim their loads as necessary.</li> <li>c. Using wet power vacuum street sweepers to:                   <ol style="list-style-type: none"> <li>1) Sweep all paved access road, parking areas and staging areas at the construction site daily or as often as necessary.</li> <li>2) Sweep public roads adjacent to the site at least twice daily or as often as necessary.</li> </ol> </li> <li>d. The use of dry power sweeping is prohibited.</li> <li>e. All trucks and equipment, including their tires, shall be washed off prior to leaving the site.</li> <li>f. Gravel or apply non-toxic soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites.</li> <li>g. Water and/or cover soil stockpiles daily.</li> <li>h. Site accesses to a distance of 100 feet from the paved road shall be treated with 12-inch layer of compacted coarse rock.</li> <li>i. Sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways from sites with a slope greater than one percent.</li> <li>j. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible.</li> <li>k. Building pads shall be laid as soon as possible after grading.</li> </ol> </li> </ol>	EBMUD and EBMUD’s Contractor	EBMUD	Prior to and During Construction	X	X	X

<sup>1</sup> In EBMUD Standard Specifications, “District” = EBMUD; “Engineer” = EBMUD Engineer; “Contractor” = EBMUD Contractor; “Work” = Scope of Work for the Project



Appendix B EBMUD Practices and Procedures Monitoring and Reporting Plan

Impact Area	EBMUD Practices and Procedures <sup>1</sup>	Responsible for Implementation	Responsible for Monitoring and/or Enforcement	Timing of Implementation	Applicable Sites		
					Existing Dos Osos PP Site	Existing Dos Osos Reservoir Site	Proposed Dual Reservoirs Site
	n. All vehicle speeds shall be limited to fifteen (15) mph or less on the construction site and any adjacent unpaved roads.						
	3.4. Emissions Control						
	A. Air Quality and Emissions Control						
	1. The Contractor shall ensure that line power is used instead of diesel generators at all construction sites where line power is available.						
	2. The Contractor shall ensure that for operation of any stationary, compression-ignition engines as part of construction, comply with Section 93115, Title 17, California Code of Regulations, Airborne Toxic Control Measure for Stationary Compression Ignition Engines, which specifies fuel and fuel additive requirements as well as emission standards.						
	3. Fixed temporary sources of air emissions (such as portable pumps, compressors, generators, etc.) shall be electrically powered unless the Contractor submits documentation and receives approval from the Engineer that the use of such equipment is not practical, feasible, or available. All portable engines and equipment units used as part of construction shall be properly registered with the California Air Resources Board or otherwise permitted by the appropriate local air district, as required.						
	4. Contractor shall implement standard air emissions controls such as:						
	a. Minimize the use of diesel generators where possible.						
	b. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes as required by the California Airborne Toxics Control Measure (ATCM) Title 13, Section 2485 of California Code of Regulations. Clear signage shall be provided for construction workers at all access points.						
	c. Follow applicable regulations for fuel, fuel additives, and emission standards for stationary, diesel-fueled engines.						
	d. Locate generators at least 100 feet away from adjacent homes and ball fields.						
	e. Perform regular low-emission tune-ups on all construction equipment, particularly haul trucks and earthwork equipment.						
Air Quality c): Potential to result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or state ambient air quality standard.	<b>EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements</b> Sections (1.3) (E, I); (3.3) (B); 3.4 (A) (Details as previously listed)	EBMUD and EBMUD's Contractor	EBMUD	Prior to and During Construction	X	X	X
Air Quality d): Potential to expose sensitive receptors to substantial pollutant concentrations.	<b>EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements</b> Sections (1.3) (E, I); (3.3) (B); 3.4 (A) (Details as previously listed)	EBMUD and EBMUD's Contractor	EBMUD	Prior to and During Construction	X	X	X
Air Quality e): Potential to create objectionable odors affecting a substantial number of people.	<b>EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements</b> Sections (1.3) (I); (3.4) (A) (Details as previously listed)	EBMUD and EBMUD's Contractor	EBMUD	Prior to and During Construction	X	X	X

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Appendix B EBMUD Practices and Procedures Monitoring and Reporting Plan

Impact Area	EBMUD Practices and Procedures <sup>1</sup>	Responsible for Implementation	Responsible for Monitoring and/or Enforcement	Timing of Implementation	Applicable Sites		
					Existing Dos Osos PP Site	Existing Dos Osos Reservoir Site	Proposed Dual Reservoirs Site
<b>Biological Resources</b>							
Biology a): Potential to have a substantial adverse effect, either directly or through habitat modifications, on candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by California Department of Fish & Wildlife or U.S. Fish & Wildlife Service.	<p><b>EBMUD’s Standard Construction Specification 01 35 44, Environmental Requirements</b></p> <p>3.8 Protection of Biological Resources</p> <p>A. The District will conduct biological reconnaissance and tree surveys in advance of construction and will conduct biologic and arboreal monitoring during construction as necessary.</p> <p>B. Protected Species</p> <p>1. If protected species or suitable habitat for protected species is found during biological reconnaissance surveys:</p> <p>a. Before beginning construction, all Contractor construction personnel are required to attend an environmental training program of up to one-day for site supervisors, foreman and project managers and up to 30-minutes for non-supervisory contractor personnel. The training program will be completed in person or by watching a video, at a District designated location, conducted by a qualified biologist. The program will discuss all sensitive habitats and sensitive species that may occur within the project work limits, including the responsibilities of Contractor’s construction personnel, applicable mitigation measures, and notification requirements. The Contractor is responsible for ensuring that all workers requiring training are identified to the District. Prior to accessing or performing construction work, all Contractor personnel shall:</p> <ul style="list-style-type: none"> <li>· Sign a wallet card provided by the Engineer verifying that all Contractor construction personnel have attended the appropriate level of training relative to their position; have read and understood the contents of any applicable documentation; and shall comply with all project environmental requirements.</li> <li>· Display an environmental training hard hat decal (provided by the District after completion of the training) at all times.</li> </ul> <p>b. Birds Protected under the Migratory Bird Treaty Act:</p> <ol style="list-style-type: none"> <li>1. It is unlawful to pursue, hunt, take, capture, or kill any migratory bird without a permit issued by the U.S. Department of the Interior.</li> <li>2. If construction commences between February 1 and August 31, during the nesting season, the District will conduct a preconstruction survey for nesting birds within 7 days prior to construction to ensure that no nest will be disturbed during construction.</li> <li>3. If active nests of migratory bird species (listed in the MBTA) are found within the project site, or in areas subject to disturbance from construction activities, an avoidance buffer to avoid nest disturbance shall be constructed. The buffer size will be determined by the District in consultation with California Department of Fish and Wildlife (CDFW) and is based on the nest location, topography, cover and species’ tolerance to disturbance.</li> <li>4. If an avoidance buffer is not achievable, a qualified biologist provided by the District will monitor the nest(s) to document that no take of the nest (nest failure) has occurred. Active nests shall not be taken or destroyed under the MBTA and, for raptors, under the CDFW Code. If it is determined that construction activity is resulting in nest disturbance, work should cease immediately and the Contractor shall notify the Engineer who will consult with the qualified biologist and appropriate regulatory agencies.</li> <li>5. If preconstruction surveys indicate that nests are inactive or potential habitat is unoccupied during the construction period, no further action is required. Trees and shrubs within the construction footprint that have been determined to be unoccupied by special-status birds or that</li> </ol>	EBMUD and EBMUD’s Contractor	EBMUD	Prior to and During Construction	X	X	X

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	<p>are located outside the avoidance buffer for active nests may be removed. Nests initiated during construction (while significant disturbance from construction activities persist) may be presumed to be unaffected, and only a minimal buffer, determined by District’s biologist, would be necessary.</p> <p>c. Roosting Bats</p> <ol style="list-style-type: none"> <li>1. If construction commences between March 1 and July 31, during the bat maternity period, the District will conduct a preconstruction survey for roosting bats within two weeks prior to construction to ensure that no roosting bats will be disturbed during construction.</li> <li>2. If roosting surveys indicate potential occupation by a special-status bat species, and/or identify a large day roosting population or maternity roost by any bat species within 200 feet of a construction work area, a qualified biologist provided by the District will conduct focused day-and/or night-emergence surveys, as appropriate.</li> <li>3. If active maternity roosts or day roosts are found within the project site, or in areas subject to disturbance from construction activities, an avoidance buffers shall be constructed. The buffer size will be determined by the District in consultation with CDFW.</li> <li>4. If a non-breeding bat roost is found in a structure scheduled for modification or removal, the bats shall be safety evicted, under the direction of a qualified biologist provided by the District in consultation with CDFW to ensure that the bats are not injured.</li> <li>5. If preconstruction surveys indicate that no roosting is present, or potential roosting habitat is unoccupied during the construction period, no further action is required. Trees and shrubs within the construction footprint that have been determined to be unoccupied by roosting bats, or that are located outside the avoidance buffer for active roosting sites may be removed. Roosting initiated during construction is presumed to be unaffected, and no buffer would be necessary.</li> </ol>						

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<b>Cultural Resources</b>							
Cultural Resources b): Potential to cause a substantial adverse change in the significance of a unique archaeological resource as defined in Section 15064.5 (of the CEQA Guidelines).	<p><b>EBMUD’s Standard Construction Specification 01 35 44, Environmental Requirements</b></p> <p>3.9 Protection of Cultural and Paleontological Resources</p> <p>A. Confidentiality of Information on Cultural Resources</p> <ol style="list-style-type: none"> <li>1. Prior to, or during the course of the Contractor’s performance under this contract, the Contractor may obtain information as to the location and/or nature of certain cultural resources, including Native American artifacts and remains. This information may be provided to the Contractor by the District or a third party, or may be discovered directly by the Contractor through its performance under the contract. All such information shall be considered “Confidential Information” for the purposes of this Article.</li> <li>2. The Contractor agrees that the Contractor, its subcontractors, and their respective agents and employees shall not publish or disclose any Confidential Information to any person, unless specifically authorized in advance, in writing by the Engineer.</li> <li>3. The indemnity obligations of Document 00 72 00 Article 4.7.5 shall apply to any breach of this Article.”</li> </ol> <p>B. Conform to the requirements of statutes as they relate to the protection and preservation of cultural and paleontological resources. Unauthorized collection of prehistoric or historic artifacts along the Work Area, or at Work facilities, is strictly prohibited.</p> <p>C. Before beginning construction, all Contractor construction personnel are required to attend a cultural resources training course of up to two-hours for site supervisors, foreman, project managers, and non-supervisory contractor personnel. The training program will be completed in person or by watching a video, at a District designated location, conducted by a qualified archaeologist or by District staff. The program will discuss cultural resources awareness within the project work limits, including the responsibilities of Contractor’s construction personnel, applicable mitigation measures, confidentiality, and notification requirements. The Contractor is responsible for ensuring that all workers requiring training are identified to the District. Prior to accessing the construction site or performing site work, all Contractor personnel shall:</p> <ol style="list-style-type: none"> <li>1. Sign an attendance sheet provided by the Engineer verifying that all construction personnel have attended the appropriate level of training; have read and understood the contents of the training; have read and understood the contents of the “Confidentiality of Information on Archaeological Resources”; and shall comply with all project environmental requirements.</li> </ol> <p>D. In the event that potential cultural or paleontological resources are discovered at the site of construction, the following procedures shall be instituted:</p> <ol style="list-style-type: none"> <li>1. Discovery of prehistoric or historic-era archaeological resources requires that all construction activities shall immediately cease at the location of discovery and within 100 feet of the discovery. <ol style="list-style-type: none"> <li>a. The Contractor shall immediately notify Engineer who will engage a qualified archaeologist provided by the District to evaluate the find. The Contractor is responsible for stopping work and notifying the proper personnel and shall not recommence work until authorized to do so by the Engineer.</li> <li>b. The District will retain a qualified archaeologist to inspect the findings within 24 hours of discovery. If it is determined that the Project could damage a historical resource as defined by CEQA (or a historic property as defined by the National Historic Preservation Act of 1966, as</li> </ol> </li> </ol>	EBMUD and EBMUD’s Contractor	EBMUD	Prior to and During Construction	X	X	X

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	<p>amended), construction shall cease in an area determined by the archaeologist until a mitigation plan has been prepared, approved by the District, and implemented to the satisfaction of the archaeologist (and Native American representative if the resource is prehistoric, who shall be identified by the Native American Heritage Commission [NAHC]). In consultation with the District, the archaeologist (and Native American representative) will determine when construction can resume.</p> <p>2. Discovery of human remains requires that all construction activities shall immediately cease at, and within 100 feet, of the location of discovery.</p> <p>a. The Contractor shall immediately notify Engineer who will engage a qualified archaeologist provided by the District to evaluate the find. The Contractor is responsible for stopping work and notifying the proper personnel and shall not recommence work until authorized to do so by the Engineer.</p> <p>b. The District will contact the County Coroner to determine whether or not the remains are Native American. If the remains are determined to be Native American, the Coroner will contact the Native American Heritage Commission (NAHC). The NAHC will then identify the person or persons it believes to be the most likely descendant from the deceased Native American, who in turn would make recommendations to the District for the appropriate means of treating the human remains and any associated funerary objects.</p> <p>E. If the District determines that the find requires further evaluation, at the direction of Engineer, the Contractor shall suspend all construction activities at the location of the find and within a larger radius, as required.</p>						
Cultural Resources c): Potential to directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	<p><b>EBMUD’s Standard Construction Specification 01 35 44, Environmental Requirements</b></p> <p>Section 3.9 Protection of Cultural and Paleontological Resources (Details as previously listed)</p>	EBMUD and EBMUD’s Contractor	EBMUD	Prior to and During Construction	X	X	X
Cultural Resources d): Potential to disturb any human remains, including those interred outside of formal cemeteries.	<p><b>EBMUD’s Standard Construction Specification 01 35 44, Environmental Requirements</b></p> <p>Section 3.9 Protection of Cultural and Paleontological Resources (Details as previously listed)</p>	EBMUD and EBMUD’s Contractor	EBMUD	Prior to and During Construction	X	X	X

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<b>Geology and Soils</b>							
Geology and Soils a) Potential to expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving: rupture of a known earthquake fault; strong seismic ground shaking; seismic-related ground failure; or landslides.	<b>EBMUD’s Engineering Standard Practices 512.1 and 550.1</b>  EBMUD uses two primary Engineering Standard Practices for the design of water pipelines in its distribution system to address geologic hazards. Engineering Standard Practice 512.1, Water Main and Services Design Criteria, establishes basic criteria for the design of water pipelines and establishes minimum requirements for pipeline construction materials. Engineering Standard Practice 550.1, Seismic Design Requirements, addresses seismic design of the pipelines to withstand seismic hazards, including fault rupture, ground shaking, liquefaction-related phenomena, landslides, seiches and tsunamis and requires that EBMUD establish project-specific seismic design criteria for pipelines with a diameter of greater than 12 inches, such as the water mains that would be installed under the proposed Project.	EBMUD and EBMUD’s Contractor	EBMUD	Prior to and During Construction			X
Geology and Soils b) Potential to result in substantial soil erosion or the loss of topsoil.	<b>EBMUD’s Standard Construction Specification 01 35 44, Environmental Requirements</b>  Sections (1.1) (B) (1) to (1.1) (B) (12)  1.1 Description  B. Site Activities 1. No debris including, but not limited to, demolition material, treated wood waste, stockpile leachate, soil, silt, sand, bark, slash, sawdust, asphalt, rubbish, paint, oil, cement, concrete or washings thereof, oil or petroleum products, or other organic or earthen materials from construction activities shall be allowed to enter into storm drains or surface waters or be placed where it may be washed by rainfall or runoff outside the construction limits. When operations are completed, excess materials or debris shall be removed from the work area as specified in the Construction and Demolition Waste Disposal Plan. 2. Excess material shall be disposed of in locations approved by the Engineer consistent with all applicable legal requirements and disposal facility permits. 3. Do not create a nuisance or pollution as defined in the California Water Code. Do not cause a violation of any applicable water quality standards for receiving waters adopted by the Regional Board or the State Water Resources Control Board, as required by the Clean Water Act. 4. Clean up all spills and immediately notify the Engineer in the event of a spill. 5. Stationary equipment such as motors, pumps, and generators, shall be equipped with drip pans. 6. Divert or otherwise control surface water and waters flowing from existing projects, structures, or surrounding areas from coming onto the work and staging areas. The method of diversions or control shall be adequate to ensure the safety of stored materials and of personnel using these areas. Following completion of Work, ditches, dikes, or other ground alterations made by the Contractor shall be removed and the ground surfaces shall be returned to their former condition, or as near as practicable, in the Engineer’s opinion. 7. Maintain construction sites to ensure that drainage from these sites will minimize erosion of stockpiled or stored materials and the adjacent native soil material. 8. Furnish all labor, equipment, and means required and shall carry out effective measures wherever, and as often as necessary, to prevent Contractor’s operations from causing visible dust emissions to leave the work areas. These measures shall include, but are not limited to, providing additional watering equipment, reducing vehicle speeds on haul roads, restricting traffic on haul roads, covering haul vehicles, and applying a dust palliative to well-traveled haul roads. The Contractor shall provide the specifications of the dust palliative for Engineer approval prior to use. The Contractor shall be	EBMUD and EBMUD’s Contractor	EBMUD	During Construction			X

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	<p>responsible for damage resulting from dust originating from its operations. The dust abatement measures shall be continued for the duration of the Contract. Water the site in the morning and evening, and as often as necessary, and clean vehicles leaving the site as necessary to prevent the transportation of dust and dirt onto public roads. Dust control involving water shall be done in such a manner as to minimize waste and runoff from the site.</p> <p>9. Construction staging areas shall be graded, or otherwise protected with Best Management Practices (BMPs), to contain surface runoff so that contaminants such as oil, grease, and fuel products do not drain towards receiving waters including wetlands, drainages, and creeks.</p> <p>10. All construction equipment shall be properly serviced and maintained in good operating condition to reduce emissions. Contractor shall make copies of equipment service logs available upon request.</p> <p>11. Any chemical or hazardous material used in the performance of the Work shall be handled, stored, applied, and disposed of in a manner consistent with all applicable federal, state, and local laws and regulations.</p> <p>12. Contaminated materials excavated and/or removed from the construction area shall be disposed of in a manner consistent with all applicable local, state, and federal laws and regulations.</p> <p>1.3 (A) Storm Water Management:</p> <p>2. Storm Water Pollution Prevention Plan (SWPPP)</p> <p>a. Submit a Stormwater Pollution Prevention Plan that describes measures that shall be implemented to prevent the discharge of contaminated storm water runoff from the jobsite. Contaminants to be addressed include, but are not limited to, soil, sediment, concrete residue, pH less than 6.5 or greater than 8.5, and chlorine residual and all other contaminants known to exist at the jobsite location.</p>						
<b>Greenhouse Gas Emissions</b>							
Greenhouse Gas Emissions a): Potential to generate annual GHG emissions, either directly or indirectly, that may have a significant impact on the environment.	<p><b>EBMUD’s Standard Construction Specification 01 35 44, Environmental Requirements</b></p> <p>3.4. Emissions Control</p> <p>A. Air Quality and Emissions Control</p> <p>1. The Contractor shall ensure that line power is used instead of diesel generators at all construction sites where line power is available.</p> <p>2. The Contractor shall ensure that for operation of any stationary, compression-ignition engines as part of construction, comply with Section 93115, Title 17, California Code of Regulations, Airborne Toxic Control Measure for Stationary Compression Ignition Engines, which specifies fuel and fuel additive requirements as well as emission standards.</p> <p>3. Fixed temporary sources of air emissions (such as portable pumps, compressors, generators, etc.) shall be electrically powered unless the Contractor submits documentation and receives approval from the Engineer that the use of such equipment is not practical, feasible, or available. All portable engines and equipment units used as part of construction shall be properly registered with the California Air Resources Board or otherwise permitted by the appropriate local air district, as required.</p> <p>4. Contractor shall implement standard air emissions controls such as:</p> <p>a. Minimize the use of diesel generators where possible.</p> <p>b. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes as required by the California Airborne Toxics Control Measure (ATCM) Title 13, Section 2485 of California Code of Regulations. Clear signage</p>	EBMUD and EBMUD’s Contractor	EBMUD	During Construction	X	X	X

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	<p>shall be provided for construction workers at all access points.</p> <p>c. Follow applicable regulations for fuel, fuel additives, and emission standards for stationary, diesel-fueled engines.</p> <p>d. Locate generators at least 100 feet away from adjacent homes and ball fields.</p> <p>e. Perform regular low-emission tune-ups on all construction equipment, particularly haul trucks and earthwork equipment.</p> <p>Sections (3.4) (A) (5) (a-d)</p> <p>a. On road and off-road vehicle tire pressures shall be maintained to manufacturer specifications. Tires shall be checked and re-inflated at regular intervals.</p> <p>b. Construction equipment engines shall be maintained to manufacturer’s specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.</p> <p>c. All construction equipment, diesel trucks, and generators shall be equipped with Best Available Control Technology for emission reductions of Oxide of Nitrogen (NOx) and Particulate Matter (PM).</p> <p>d. Demolition debris shall be recycled for reuse to the extent feasible.</p>						
<b>Hazards and Hazardous Materials</b>							
Hazards and Hazardous Materials a): Potential to create a significant hazard to human health and/or the environment involving the release of hazardous materials.	<p><b>EBMUD’s Standard Construction Specification 01 35 44, Environmental Requirements</b></p> <p>1.3 (A) Storm Water Management:</p> <p>2. Storm Water Pollution Prevention Plan (SWPPP)</p> <p>a. Submit a Stormwater Pollution Prevention Plan that describes measures that shall be implemented to prevent the discharge of contaminated storm water runoff from the jobsite. Contaminants to be addressed include, but are not limited to, soil, sediment, concrete residue, pH less than 6.5 or greater than 8.5, and chlorine residual and all other contaminants known to exist at the jobsite location.</p> <p>1.3 (C) Construction and Demolition Waste Disposal Plan:</p> <p>1. Prepare a Construction and Demolition Waste Disposal Plan and submit a copy of the plan for the Engineer's acceptance prior to disposing of any material (except for water wastes which shall be addressed in the Water Control and Disposal Plan).</p> <p>a. The plan shall identify how the Contractor will remove, handle, transport, and dispose of all materials required to be removed under this contract in a safe, appropriate, and lawful manner in compliance with all applicable regulations of local, state, and federal agencies having jurisdiction over the disposal of removed materials.</p> <p>b. The Contractor shall procure the necessary permits required by the local, state, and federal agencies having jurisdiction over the handling, transportation, and disposal of construction and demolition waste.</p> <p>c. Include a list of reuse facilities, recycling facilities and processing facilities that will be receiving recovered materials.</p> <p>d. Identify materials that are not recyclable or not recovered which will be disposed of in a landfill (or other means acceptable by the State of California and local ordinance and regulations).</p> <p>g. List the permitted landfill, or other permitted disposal facilities that will be accepting the disposed waste materials.</p> <p>h. Identify each type of waste material to be reused, recycled or disposed of and estimate the amount, by weight.</p>	EBMUD and EBMUD’s Contractor	EBMUD	Prior to and During Construction	X	X	X

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	<ul style="list-style-type: none"> <li>i. Plan shall include the sampling and analytical program for characterization of any waste material, as needed, prior to reuse, recycle or disposal.</li> <li>2. Materials or wastes shall only be disposed of at facilities approved of by the District.</li> <li>3. Submit permission to reuse, recycle, reclaim, or dispose of material from reuse, recycling, reclamation, or disposal site owner along with any other information needed by the District to evaluate the acceptability of the proposed reuse, recycling, or disposal site and obtain acceptance of the Engineer prior to removing any material from the project site.</li> <li>4. All information pertinent to the characterization of the material or waste shall be disclosed to the District and the reuse, recycling, reclamation, or disposal facility. Submit copies of any profile forms and/or correspondence between the Contractor and the reuse, recycling, reclamation, or disposal facility.</li> <li>5. Submit name and Environmental Laboratory Accreditation Program Certificate number of laboratory that will analyze samples for suspected hazardous substances. Include statement of laboratory's certified testing areas and analyses that laboratory is qualified to perform. Submit prior to any laboratory testing.</li> </ul>						
	1.3 (D) Spill Prevention and Response Plan						
	<ul style="list-style-type: none"> <li>1. Submit plan detailing the means and methods for preventing and controlling the spilling of known hazardous substances used on the jobsite or staging areas. The plan shall include a list of the hazardous substances proposed for use or generated by the Contractor on site, including petroleum products, and measures that will be taken to prevent spills, monitor hazardous substances, and provide immediate response to spills. Spill response measures shall address notification of the Engineer and appropriate agencies including phone numbers; spill-related worker, public health, and safety issues; spill control, and spill cleanup.</li> <li>2. Submit a Material Safety Data Sheet (MSDS) for each hazardous substance proposed to be used prior to delivery of the material to the jobsite.</li> </ul>						
	<b>EBMUD's Standard Construction Specification 01 35 24, Project Safety Requirements</b>	EBMUD and EBMUD's Contractor	EBMUD	Prior to and During Construction	X	X	X
	1.3 (B) Project Safety and Health Plan:						
	<ul style="list-style-type: none"> <li>1. Submit prior to start of the Work for the Engineer's review a Project Safety and Health Plan for the Work to be performed only if actual, potential, or anticipated hazards include: a) hazardous substances; b) fall protection issues; c) confined spaces; d) trenches or excavations; or, e) lockout/tagout. If the actual, potential, or anticipated hazards do not include one or more of these five hazards, no Plan is required.</li> <li>2. Submit prior to start of Work the name of individual(s) who has been designated as: <ul style="list-style-type: none"> <li>a. Contractor's Project Safety and Health Representative</li> <li>b. Submit principal and alternate Competent/Qualified Persons for: <ul style="list-style-type: none"> <li>1) scaffolding; 2) fall protection systems and equipment; and 3) employee protective systems for trenches and excavations.</li> </ul> </li> <li>c. Qualified person to conduct and take samples and air measurements of known or suspect hazardous substance for personnel and environmental exposure. Sample results shall be submitted to the Engineer in writing and electronic format.</li> </ul> </li> <li>3. Plan shall include an emergency action plan in the event of an accident, or serious unplanned event (e.g.: gasoline break, fire, structure collapse, etc.) that requires notifying any responsive agencies (e.g.: fire departments, PG&amp;E, rescue teams, etc.).</li> </ul>						

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	1.4 Training Requirements						
	A. Ensure that all personnel who, as the result of work on this contract, will likely be exposed to hazardous conditions or hazardous substances at the site have received the appropriate training for the hazards they may encounter. Establish minimum training requirements and do not allow untrained workers to enter or perform Work at the site.						
	<b>EBMUD’s Environmental Compliance Manual</b>	EBMUD and EBMUD’s Contractor	EBMUD	During Construction	X	X	X
	Section 3, Water Quality Protection, of the Environmental Compliance Manual describes how EBMUD complies with the National Pollutant Discharge Elimination System (NPDES) permit issued by the San Francisco Bay Regional Water Quality Control Board for planned, unplanned, and emergency discharges from the potable water transmission, storage, and distribution system. This section addresses water quality permitting issues related to facility discharges, potable water discharges, construction stormwater discharges, sanitary sewer overflows, and other activities within navigable waters such as streambed alterations, dredging, levee maintenance, and bank stabilization. Section 3.0, Water Quality Protection, of the EBMUD Environmental Compliance Manual also requires: <ul style="list-style-type: none"> <li>• placement of BMPs (dechlorination tabs and sediment control) at all affected storm drains, even if there are no planned discharges, since unplanned discharges may occur at any time when working on pipelines containing chlorinated water;</li> <li>• photo documentation of all BMP installations;</li> <li>• documented calculation of the amount of dechlorination agent necessary to dechlorinate the planned discharge;</li> <li>• measurement and recording of the amount of dechlorination agent used;</li> </ul>						
	Section 9, Trench Spoils Field Management Practices, of the Environmental Compliance Manual includes a Trench Spoils Best Management Practices (BMP) program that describes procedures to be followed prior to and during projects to ensure that worker exposure to contaminants of concern is minimized and that spoils are disposed of properly. The Trench Spoils Field Management Practices require project site investigations, collection and analysis of soil, slurry and groundwater samples if deemed necessary by initial site investigations and database record searches, and, depending on the results of the sampling, advance soil, slurry and groundwater disposal arrangements.						
	<b>EBMUD’s Standard Construction Specification 02 83 13, Lead Hazard Control Activities</b>	EBMUD and EBMUD’s Contractor	EBMUD	Prior to and During Construction	X	X	X
	1.1 Compliance and Intent						
	A. Furnish all labor, materials, facilities, equipment, services, employee training and testing, permits, and agreements necessary to perform the lead removal in accordance with these specifications and with the latest regulations from the U.S. Environmental Protection Agency (EPA), the Occupational Safety and Health Administration (OSHA), the Air Quality Management District with authority over the project, the Cal/EPA Department of Toxic Substance Control, the California Occupational Safety and Health Administration (Cal/OSHA), and other federal, state, county, and local agencies. Whenever there is a conflict or overlap of the above references, the most stringent provision is applicable.						
	B. During demolition procedures, the Contractor shall protect against contamination of soils, water, adjacent buildings and properties, and the airborne release of hazardous materials and dusts. The costs associated with the implementation of controls will be incurred by the Contractor.						
	C. Any information developed from exploratory work done by the District and any investigation done by the Contractor to acquaint himself with available information will not relieve the Contractor from the responsibility of properly estimating the difficulty or cost of successfully performing the work. The District is not responsible for any conclusions or interpretations made by the Contractor based on the information made available by the District or District’s representative.						

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Appendix B EBMUD Practices and Procedures Monitoring and Reporting Plan

Impact Area	EBMUD Practices and Procedures <sup>1</sup>	Responsible for Implementation	Responsible for Monitoring and/or Enforcement	Timing of Implementation	Applicable Sites		
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	D. Hazardous materials uncovered during the demolition activities shall be disposed of in an approved manner complying with all applicable federal, state, and local regulations. Appropriate waste manifests shall be furnished to the Engineer as per Section 01 35 44, Environmental Requirements.						
	<b>EBMUD’s Standard Construction Specification 02 82 13, Asbestos Control Activities</b>	EBMUD and EBMUD’s Contractor	EBMUD	Prior to and During Construction	X	X	X
	1.1 Compliance and Intent						
	A. Furnish all labor, materials, facilities, equipment, services, employee training and testing, permits, and agreements necessary to perform the asbestos removal in accordance with these specifications and with the latest regulations from the U.S. Environmental Protection Agency (EPA), the Occupational Safety and Health Administration (OSHA), the Bay Area Air Quality Management District (BAAQMD), the Cal/EPA Department of Toxic Substance Control, the California Department of Occupational Safety and Health (DOSH), and other federal, state, county, and local agencies. Whenever there is a conflict or overlap of the above references, the most stringent provision is applicable.						
	C. During demolition procedures, the Contractor shall protect against contamination of soils, water, adjacent buildings and properties, and the airborne release of hazardous materials and dusts. The Contractor will incur the costs associated with the implementation of controls and, if necessary, remediation. The Contractor shall be responsible for all necessary cleanup of contaminated areas/properties to pre-work condition and for all associated costs. It is the Contractor's responsibility to confirm and document the quantities of asbestos material to be removed.						
	D. Any information developed from exploratory work done by the District and any investigation done by the Contractor to acquaint himself with available information will not relieve the Contractor from the responsibility of properly estimating the difficulty or cost of successfully performing the work. The District is not responsible for any conclusions or interpretations made by the Contractor based on the information made available by the District or District's representative.						
	E. Asbestos materials uncovered during the demolition activities shall be disposed of in an approved manner complying with all applicable federal, state, and local regulations. Appropriate waste manifests shall be furnished to the Engineer as per Sections 01 35 24 and 01 35 44.						
	F. Materials and equipment shall be stored in the areas as directed by the Engineer.						
	<b>EBMUD’s Procedure 711, Hazardous Waste Removal</b>				X	X	X
	This procedure defines hazardous waste and establishes responsibilities for removal of hazardous wastes from EBMUD facilities. This procedure outlines specific steps and responsibilities for: characterizing the waste and determining what analyses are needed to classify the waste; coordinating waste disposal, reuse or recycling issues; labeling, storing, inspecting, and maintaining inventory records for the waste; and reviewing, signing, and tracking any hazardous waste handling and disposal requirements and hazardous waste manifests.						
Hazards and Hazardous Materials b) Potential to create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment.	<b>EBMUD’s Standard Construction Specification 01 35 44, Environmental Requirements</b>	EBMUD and EBMUD’s Contractor	EBMUD	Prior to and During Construction	X	X	X
	Sections (1.3) (A) (C) (D) (Details as previously listed)						
	<b>EBMUD’s Standard Construction Specification 01 35 24, Project Safety Requirements</b>	EBMUD and EBMUD’s Contractor	EBMUD	Prior to and During Construction	X	X	X
	Sections (1.3) (B) (Details as previously listed)						
	<b>EBMUD’s Environmental Compliance Manual</b>	EBMUD and EBMUD’s Contractor	EBMUD	During Construction	X	X	X
	Section 3 (Details as previously listed) Section 9 (Details as previously listed)						
	<b>EBMUD’s Standard Construction Specification 02 83 13, Lead Hazard Control Activities</b>	EBMUD and EBMUD’s Contractor	EBMUD	Prior to and During Construction	X	X	X
	Sections (1.1) and (1.2) (Details as previously listed)						

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	<b>EBMUD’s Standard Construction Specification 02 82 13, Asbestos Control Activities</b>	EBMUD and EBMUD’s Contractor	EBMUD	Prior to and During Construction	X	X	X
	Sections (1.1) and (1.2) (Details as previously listed)						
	<b>EBMUD’s Procedure 711, Hazardous Waste Removal</b>	EBMUD and EBMUD’s Contractor	EBMUD	Prior to and During Construction	X	X	X
	(Details as previously listed)						
Hazards and Hazardous Materials h) Potential to expose people or structures to the risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.	<b>EBMUD’s Standard Construction Specification 01 35 24, Project Safety Requirements</b>  1.6 Fire Prevention and Protection  A. Perform all Work in a fire safe manner and supply and maintain on the site adequate firefighting equipment capable of extinguishing incipient fires. Comply with applicable federal, local, and state fire prevention regulations. Where these regulations do not apply, applicable parts of the National Fire Prevention Standards for Safeguarding Building Construction Operations (NFPA No. 241) shall be followed.	EBMUD and EBMUD’s Contractor	EBMUD	During Construction	X	X	X

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<b>Hydrology and Water Quality</b>							
Hydrology and Water Quality a): Potential to violate water quality standards or waste discharge requirements.	<b>EBMUD’s Standard Construction Specification 01 35 44, Environmental Requirements</b>  Sections (1.1) (B) (1) to (1.1) (B) (12)  1.1 Description  B. Site Activities  1. No debris including, but not limited to, demolition material, treated wood waste, stockpile leachate, soil, silt, sand, bark, slash, sawdust, asphalt, rubbish, paint, oil, cement, concrete or washings thereof, oil or petroleum products, or other organic or earthen materials from construction activities shall be allowed to enter into storm drains or surface waters or be placed where it may be washed by rainfall or runoff outside the construction limits. When operations are completed, excess materials or debris shall be removed from the work area as specified in the Construction and Demolition Waste Disposal Plan. 2. Excess material shall be disposed of in locations approved by the Engineer consistent with all applicable legal requirements and disposal facility permits. 3. Do not create a nuisance or pollution as defined in the California Water Code. Do not cause a violation of any applicable water quality standards for receiving waters adopted by the Regional Board or the State Water Resources Control Board, as required by the Clean Water Act. 4. Clean up all spills and immediately notify the Engineer in the event of a spill. 5. Stationary equipment such as motors, pumps, and generators, shall be equipped with drip pans. 6. Divert or otherwise control surface water and waters flowing from existing projects, structures, or surrounding areas from coming onto the work and staging areas. The method of diversions or control shall be adequate to ensure the safety of stored materials and of personnel using these areas. Following completion of Work, ditches, dikes, or other ground alterations made by the Contractor shall be removed and the ground surfaces shall be returned to their former condition, or as near as practicable, in the Engineer's opinion. 7. Maintain construction sites to ensure that drainage from these sites will minimize erosion of stockpiled or stored materials and the adjacent native soil material. 8. Furnish all labor, equipment, and means required and shall carry out effective measures wherever, and as often as necessary, to prevent Contractor’s operations from causing visible dust emissions to leave the work areas. These measures shall include, but are not limited to, providing additional watering equipment, reducing vehicle speeds on haul roads, restricting traffic on haul roads, covering haul vehicles, and applying a dust palliative to well-traveled haul roads. The Contractor shall provide the specifications of the dust palliative for Engineer approval prior to use. The Contractor shall be responsible for damage resulting from dust originating from its operations. The dust abatement measures shall be continued for the duration of the Contract. Water the site in the morning and evening, and as often as necessary, and clean vehicles leaving the site as necessary to prevent the transportation of dust and dirt onto public roads. Dust control involving water shall be done in such a manner as to minimize waste and runoff from the site. 9. Construction staging areas shall be graded, or otherwise protected with Best Management Practices (BMPs), to contain surface runoff so that contaminants such as oil, grease, and fuel products do not drain towards receiving waters including wetlands, drainages, and creeks. 10. All construction equipment shall be properly serviced and maintained in good operating condition to reduce emissions. Contractor shall make copies of equipment service logs available upon request.	EBMUD and EBMUD’s Contractor	EBMUD	During Construction			X

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	11. Any chemical or hazardous material used in the performance of the Work shall be handled, stored, applied, and disposed of in a manner consistent with all applicable federal, state, and local laws and regulations. 12. Contaminated materials excavated and/or removed from the construction area shall be disposed of in a manner consistent with all applicable local, state, and federal laws and regulations.						
	<b>EBMUD’s Standard Construction Specification 01 35 44, Environmental Requirements</b>	EBMUD and EBMUD’s Contractor	EBMUD	Prior to and During Construction	X	X	X
	1.3 (A) Storm Water Management: <ol style="list-style-type: none"> <li>2. Storm Water Pollution Prevention Plan (SWPPP)                             <ol style="list-style-type: none"> <li>a. Submit a Stormwater Pollution Prevention Plan that describes measures that shall be implemented to prevent the discharge of contaminated storm water runoff from the jobsite. Contaminants to be addressed include, but are not limited to, soil, sediment, concrete residue, pH less than 6.5 or greater than 8.5, and chlorine residual and all other contaminants known to exist at the jobsite location.</li> </ol> </li> </ol>						
	1.3 (B) Water Control and Disposal Plan: <ol style="list-style-type: none"> <li>1. The Contractor shall submit a detailed Water Control and Disposal Plan for the Engineer's acceptance prior to any work at the jobsite.                             <ol style="list-style-type: none"> <li>a. Plan shall comply with all requirements of the Specification and applicable discharge permits.</li> <li>b. Contractor shall maintain proper control of the discharge at the discharge point to prevent erosion, scouring of bank, nuisance, contamination, and excess sedimentation in the receiving waters.</li> </ol> </li> <li>2. Drinking Water System Discharges                             <ol style="list-style-type: none"> <li>a. Plan shall include the estimated flow rate and volume of all proposed discharges to surface waters, including discharges to storm drains. All receiving waters shall be clearly identified.</li> <li>b. Contractor shall track all discharges directly to a surface water body or a storm drain system that drains to a surface water body. A record consisting of discharge locations and volumes shall be submitted to the Engineer prior to contract acceptance.</li> <li>c. A monitoring program is required for drinking water system discharges greater than 325,850 gallons in conformance with Attachment E, Monitoring and Reporting Program, of the General Drinking Water Discharges Permit, when the water will be discharged either directly into a surface water body or a storm drain system that drains to a surface water body. A record consisting of discharge locations, volumes and WQ data shall be submitted to the Engineer. The Planned Discharge Tracking Form attached to the end of this section, may be used to fulfill this requirement. All monitoring results shall be submitted to the Engineer prior to contract acceptance.</li> <li>d. Contractor shall dechlorinate all drinking water system discharges to achieve a total chlorine residual concentration of &lt; 0.1 mg/L measured with a handheld chlorine meter utilizing a US EPA approved method and provide effective erosion &amp; sediment control to achieve a visual turbidity concentration of ≤ 100 NTU by implementing BMPs which meet the District minimum standards or better.</li> <li>e. Instead of discharging to surface waters, where feasible, Contractor shall beneficially reuse water derived from drinking water systems as defined in the General Drinking Water Discharges Permit. Potential reuse strategies include, but are not limited to, landscape irrigation, agricultural irrigation, dust control, and discharge to stormwater capture basins or other groundwater recharge systems. Contractor shall do so without impacting property or the environment. Contractor shall provide a record of reuse location(s) and volume(s) and submit it to the Engineer prior to contract acceptance.</li> </ol> </li> </ol>						

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	<p>f. Contractor shall ensure that the pH level of any discharges shall not be depressed below 6.5 nor raised above 8.5. If there is potential for discharges to be below 6.5 or above 8.5, Contractor shall employ pH adjustment best management practices to ensure discharges are within the range of 6.5 and 8.5. Contractor shall conduct onsite field measurements for pH per quality assurance and quality control (QA/QC) protocol that conform to U.S. EPA guidelines, or procedures approved by the American Water Works Association or other professional drinking water industry association. Contractor shall submit all monitoring results to the Engineer prior to contract acceptance.</p> <p>3. Non-Stormwater Discharges</p> <p>a. Plan shall describe measures for containment, handling, treatment (as necessary), and disposal of discharges such as groundwater (if encountered), runoff of water used for dust control, stockpile leachate, tank heel water, wash water, sawcut slurry, test water and construction water or other liquid that has been in contact with any interior surfaces of District facilities. Contractor shall provide the Engineer with containment, handling, treatment and disposal designs and a sampling &amp; analysis plan for approval before commencing the Work.</p> <p>1.3 (D) Spill Prevention and Response Plan</p> <p>1. Submit plan detailing the means and methods for preventing and controlling the spilling of known hazardous substances used on the jobsite or staging areas. The plan shall include a list of the hazardous substances proposed for use or generated by the Contractor on site, including petroleum products, and measures that will be taken to prevent spills, monitor hazardous substances, and provide immediate response to spills. Spill response measures shall address notification of the Engineer and appropriate agencies including phone numbers; spill-related worker, public health, and safety issues; spill control, and spill cleanup.</p> <p>2. Submit a Material Safety Data Sheet (MSDS) for each hazardous substance proposed to be used prior to delivery of the material to the jobsite.</p>						
	<p><b>EBMUD’s Environmental Compliance Manual</b></p> <p>Section 3, “Water Quality Protection,” of the Environmental Compliance Manual describes how EBMUD complies with the National Pollutant Discharge Elimination System (NPDES) permit issued by the San Francisco Bay Regional Water Quality Control Board for planned, unplanned, and emergency discharges from the potable water transmission, storage, and distribution system. This section addresses water quality permitting issues related to facility discharges, potable water discharges, construction stormwater discharges, sanitary sewer overflows, and other activities within navigable waters such as streambed alterations, dredging, levee maintenance, and bank stabilization.</p>	EBMUD and EBMUD’s Contractor	EBMUD	During Construction	X	X	X
Hydrology and Water Quality c) and d): Potential to 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 erosion or siltation on- or off-site; or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site.	<p><b>EBMUD’s Standard Construction Specification 01 35 44, Environmental Requirements</b></p> <p>Sections (1.3) (A); (1.3) (B) (Details as previously listed)</p>	EBMUD and EBMUD’s Contractor	EBMUD	Prior to and During Construction		X	X

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Hydrology and Water Quality e) and f): Potential to create or contribute runoff water, which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff. Or otherwise substantially degrade water quality.	<b>EBMUD’s Standard Construction Specification 01 35 44, Environmental Requirements</b> Sections (1.1) (B) (1); (1.3) (A, B and D) (Details as previously listed)	EBMUD and EBMUD’s Contractor	EBMUD	Prior to and During Construction			X
	<b>EBMUD’s Environmental Compliance Manual</b> Section 3 (Details as previously listed)	EBMUD and EBMUD’s Contractor	EBMUD	Prior to and During Construction			X
	<b>EBMUD’s Engineering Standard Practices 512.1 and 550.1</b> EBMUD uses two primary Engineering Standard Practices for the design of water pipelines in its distribution system to address geologic hazards. Engineering Standard Practice 512.1, Water Main and Services Design Criteria, establishes basic criteria for the design of water pipelines and establishes minimum requirements for pipeline construction materials. Engineering Standard Practice 550.1, Seismic Design Requirements, addresses seismic design of the pipelines to withstand seismic hazards including fault rupture, ground shaking, liquefaction-related phenomena, landslides, seiches and tsunamis and requires that EBMUD establish project-specific seismic design criteria for pipelines with a diameter of greater than 12 inches, such as the water mains that would be installed under the proposed project.	EBMUD and EBMUD’s Contractor	EBMUD	Prior to and During Construction			X
Hydrology and Water Quality i): Potential to 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.	<b>EBMUD’s Reservoir Design Guide</b> The EBMUD Reservoir Design Guide details design guidelines that apply to the design and construction of bolted-steel tanks. Section 4.2.1, Codes and Design Standards, of the Reservoir Design Guide lists the building codes and design references to be used during construction of bolted-steel tanks to ensure compliance with current engineering practice and standards.	EBMUD and EBMUD’s Contractor	EBMUD	Prior to and During Construction			X
<b>Noise</b>							
Noise a) Potential for exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.	<b>EBMUD’s Standard Construction Specification 01 14 00, Work Restrictions</b> 1.4 Work Hours A. Work or activity of any kind shall be limited to the hours from 7:00 a.m. to 6:00 p.m. Monday through Friday. D. Truck operations (haul trucks and concrete delivery trucks) shall be limited to the daytime hours 9:00 a.m. and 4:00 p.m.  1.8 Construction Noise A. Noise-generating activities greater than 90 dBA (impact construction such as concrete breaking, concrete crushing, tree grinding, etc.) shall be limited to the hours of 8:00 a.m. and 4:00 p.m., Monday through Friday.	EBMUD and EBMUD’s Contractor	EBMUD	Prior to and During Construction	X	X	X
Noise b): Potential for exposure of persons or generation of excessive groundborne vibration or groundborne noise levels.	<b>EBMUD’s Standard Construction Specification 01 35 44, Environmental Requirements</b> 3.5 Vibration Control A. Limit surface vibration to no more than 0.5 in/sec PPV, measured at the nearest residence or other sensitive structure. See Section 01 14 00. B. Upon homeowner request, and with homeowner permission, the District will conduct preconstruction surveys of homes, sensitive structures and other areas of concern within 15 feet of continuous vibration-	EBMUD and EBMUD’s Contractor	EBMUD	Prior to and During Construction	X	X	X

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	generating activities (i.e. vibratory compaction). Any new cracks or other changes in structures will be compared to preconstruction conditions and a determination made as to whether the proposed project could have caused such damage. In the event that the project is demonstrated to have caused the damage, the District will have the damage repaired to the pre-existing condition.						
	<p>3.6 Noise Control</p> <p>A. Comply with sound control and noise level rules, regulations and ordinances as required herein and in the CEQA documents which apply to any work performed pursuant to the contract.</p> <p>B. Contractor is responsible for taking appropriate measures, including muffling of equipment, selecting quieter equipment, erecting noise barriers, modifying work operations, and other measures as needed to bring construction noise into compliance.</p> <p>C. Each internal combustion engine, used for any purpose on the job or related to the job, shall be equipped with a muffler of a type recommended by the manufacturer. No internal combustion engine shall be operated on the project without said muffler.</p> <p>D. Best available noise control techniques (including mufflers, intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds) shall be used for all equipment and trucks, as necessary.</p> <p>E. Truck operations (haul trucks and concrete delivery trucks) will be limited to the daytime hours specified in Section 01 14 00.</p> <p>F. Stationary noise sources (e.g., chippers, grinders, compressors) shall be located as far from sensitive receptors as possible. If they must be located near receptors, adequate muffling (with enclosures) shall be used. Enclosure opening or venting shall face away from sensitive receptors.</p> <p>G. Material stockpiles as well as maintenance/equipment staging and parking areas (all on-site) shall be located as far as practicable from residential receptors.</p> <p>H. If impact equipment (e.g., jack hammers, pavement breakers, rock drills etc.) is used during project construction, Contractor is responsible for taking appropriate measures, including but not limited to the following:</p> <ol style="list-style-type: none"> <li>1. Hydraulically or electric-powered equipment shall be used wherever feasible to avoid the noise associated with compressed-air exhaust from pneumatically powered tools. However, where use of pneumatically powered tools is unavoidable, an exhaust muffler on the compressed-air exhaust shall be used (a muffler can lower noise levels from the exhaust by up to about 10 dB). External jackets on the tools themselves shall be used, where feasible, which could achieve a reduction of 5 dB. Quieter procedures, such as drilling rather than impact equipment, will be used whenever feasible. It is the Contractor’s responsibility to implement any mitigations necessary to meet applicable noise requirements.</li> <li>2. Impact construction including jackhammers, hydraulic backhoe, concrete crushing/recycling activities, vibratory pile drivers shall be limited to the day time hours specified in Section 01 14 00.</li> <li>3. Erect temporary noise barriers or noise control blankets around the construction site, particularly along areas adjacent to residential buildings.</li> <li>4. Utilize noise control blankets around the major noise sources to reduce noise emission from the site.</li> <li>5. Evaluate the feasibility of noise control at the receivers by temporarily improving the noise reduction capability of adjacent buildings by the use of sound blankets for example.</li> </ol>						

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	6. Limit the noisiest phases of construction to 10 work days at a time, where feasible.						
	7. Notify neighbors/occupants within 300 feet of project construction at least thirty days in advance of extreme noise generating activities about the estimated duration of the activity.						
	8. Noise Monitoring shall be conducted periodically during noise generating activities. Monitoring shall be conducted using a precision sound-level meter that is in conformance with the American National Standards Institute (ANSI) Standard S1.4, Specification for Sound Level Meters. Monitoring results shall be submitted weekly to the Engineer.						
	<b>EBMUD's Standard Construction Specification 01 14 00 Work Restrictions</b>	EBMUD and EBMUD's Contractor	EBMUD	Prior to and During Construction		X	X
	1.4 Work Hours						
	A. Work or activity of any kind shall be limited to the hours from 7:00 a.m. to 6:00 p.m. Monday through Friday.						
	D. Truck operations (haul trucks and concrete delivery trucks) shall be limited to the daytime hours 9:00 a.m. and 4:00 p.m.						
	1.8 Construction Noise						
	A. Noise-generating activities greater than 90 dBA (impact construction such as concrete breaking, concrete crushing, tree grinding, etc.) shall be limited to the hours of 8:00 a.m. and 4:00 p.m., Monday through Friday.						
Noise d): Potential for substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.	<b>EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements</b>	EBMUD and EBMUD's Contractor	EBMUD	Prior to and During Construction		X	X
	Section (3.6) (A-I) (Details as previously listed)						
<b>Transportation/Traffic</b>							
Transportation/Traffic a): Potential to 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>EBMUD's Standard Construction Specification 01 14 00 Work Restrictions</b>	EBMUD and EBMUD's Contractor	EBMUD	Prior to and During Construction	X	X	X
	1.4 Work Hours						
	A. Work or activity of any kind shall be limited to the hours from 7:00 a.m. to 6:00 p.m. Monday through Friday.						
	D. Truck operations (haul trucks and concrete delivery trucks) shall be limited to the daytime hours 9:00 a.m. and 4:00 p.m.						
	1.8 Construction Noise						
	A. Noise-generating activities greater than 90 dBA (impact construction such as concrete breaking, concrete crushing, tree grinding, etc.) shall be limited to the hours of 8:00 a.m. and 4:00 p.m., Monday through Friday.						

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	<b>EBMUD’s Standard Construction Specification 01 55 26, Traffic Regulation</b>	EBMUD and EBMUD’s Contractor	EBMUD	Prior to and During Construction	X	X	X
	1.2 Submittals						
	A. Submit at least 15 days prior to work a detailed traffic control plan, that is approved by all agencies having jurisdiction and that conforms to all requirements of these specifications. Traffic Control Plan shall include:						
	1. Circulation and detour plans to minimize impacts to local street circulation. Use haul routes minimizing truck traffic on local roadways to the extent possible.						
	2. A description of emergency response vehicle access. If the road or area is completely blocked, preventing access by an emergency responder, a contingency plan must be included.						
	3. Procedures, to the extent feasible, to schedule construction of project elements to minimize overlapping construction phases that require truck hauling.						
	4. Designated Contractor staging areas on or adjacent to the worksite for storage of all equipment and materials, in such a manner to minimize obstruction to traffic.						
	5. Locations for parking by construction workers.						
Transportation/Traffic b): Potential to conflict with an applicable congestions management program, including but not limited to level of service demands and travel demand measures, or other standards established by the county congestion management agency for designated roads and or highways.	<b>EBMUD’s Standard Construction Specification 01 55 26, Traffic Regulation</b> Section (1.2) (Details as previously listed)	EBMUD and EBMUD’s Contractor	EBMUD	Prior to and During Construction	X	X	X
	<b>EBMUD’s Standard Construction Specification 01 14 00, Work Restrictions</b> Section (1.4) (Details as previously listed)	EBMUD and EBMUD’s Contractor	EBMUD	Prior to and During Construction	X	X	X
Transportation/Traffic d): Potential to substantially increase hazards to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).	<b>EBMUD’s Standard Construction Specification 00 31 21.13, Site Survey Information</b> 1.2 Site Survey Audio-Video Recording Requirements	EBMUD and EBMUD’s Contractor	EBMUD	Prior to and During Construction	X	X	X
	A. Pre-Construction Survey: The Contractor shall, in the presence of the Engineer, perform a Pre-Construction Site Survey audio-video recording of the complete project alignment and all access and haul routes to be utilized during construction. The survey shall fully document the conditions of pavements and public and private improvements within the limits of work. Prior to commencement of the Pre-Construction Survey recording, the Contractor shall notify the Engineer in writing within 48-hours of the recording. The District may provide a designated representative to accompany and observe all audio-video recording operations. Audio-video recording completed without a District Representative present will be unacceptable unless specifically authorized by the District.						
	B. The format of the site survey shall be a digital audio-video file in mp4, avi, or mpg with narrative, supplemented with photographs and field notes as appropriate.						
	C. Provide a copy of the pre-construction survey to the District for review and comment.						
	D. The Contractor shall employ a qualified videographer, experienced in taking properly documented and annotated video to take a Pre-Construction recording of the entire site including the areas of adjacent properties and shall be made within 30-days of Work beginning.						
	E. The Contractor shall submit a quality audio-video recording documenting Pre-Construction field conditions for the entire project. When the Work includes construction of water, wastewater, recycle,						

<sup>1</sup> In EBMUD Standard Specifications, “District” = EBMUD; “Engineer” = EBMUD Engineer; “Contractor” = EBMUD Contractor; “Work” = Scope of Work for the Project



Impact Area	EBMUD Practices and Procedures <sup>1</sup>	Responsible for Implementation	Responsible for Monitoring and/or Enforcement	Timing of Implementation	Applicable Sites		
					Existing Dos Osos PP Site	Existing Dos Osos Reservoir Site	Proposed Dual Reservoirs Site
Transportation/Traffic e): Potential to Result in inadequate emergency access.	<p>or other lines in the vicinity of any street or road, the Contractor shall take digital audio-video recordings of existing conditions along both sides of the street or road. The finalized pre-construction audio-video recording shall be submitted to the District and accepted prior to commencing any Work or using any Contractor laydown areas.</p> <p>F. Post-Construction Survey: The Contractor shall, in the presence of the Engineer, perform a Post-Construction Site Survey audio-video recording of the same areas recorded in the Pre-Construction Survey. The Engineer will review post-construction survey findings with the Contractor and develop a complete listing of project site restoration requirements to be accomplished by the Contractor. Prior to commencement of Post-Construction Survey recording, the Contractor shall notify the Engineer in writing within 48-hours of the recording. The District may provide a designated representative to accompany and observe all audio-video recording operations. Audio-video recording completed without a District Representative present will be unacceptable unless specifically authorized by the District. The Contractor shall be responsible for repairing any damage or defect not documented as existing prior to construction.</p>						
	<p><b>EBMUD’s Standard Construction Specification 01 55 26, Traffic Regulation</b></p> <p>1.2 Submittals</p> <p>A. Submit at least 15 days prior to work a detailed traffic control plan, that is approved by all agencies having jurisdiction and that conforms to all requirements of these specifications. Traffic Control Plan shall include:</p> <ol style="list-style-type: none"> <li>1. Circulation and detour plans to minimize impacts to local street circulation. Use haul routes minimizing truck traffic on local roadways to the extent possible.</li> <li>2. A description of emergency response vehicle access. If the road or area is completely blocked, preventing access by an emergency responder, a contingency plan must be included.</li> <li>3. Procedures, to the extent feasible, to schedule construction of project elements to minimize overlapping construction phases that require truck hauling.</li> <li>4. Designated Contractor staging areas on or adjacent to the worksite for storage of all equipment and materials, in such a manner to minimize obstruction to traffic.</li> <li>5. Locations for parking by construction workers.</li> </ol> <p>3.1 General (Execution)</p> <ol style="list-style-type: none"> <li>A. Except where public roads have been approved for closure, traffic shall be permitted to pass through designated traffic lanes with as little inconvenience and delay as possible.</li> <li>B. Install temporary traffic markings where required to direct the flow of traffic. Maintain the traffic markings for the duration of need and remove by abrasive blasting when no longer required.</li> <li>C. Convenient access to driveways and buildings in the vicinity of work shall be maintained as much as possible. Temporary approaches to, and crossing of, intersecting traffic lanes shall be provided and kept in good condition.</li> <li>D. When leaving a work area and entering a roadway carrying public traffic, the Contractor's equipment, whether empty or loaded, shall in all cases yield to public traffic.</li> <li>E. Provide temporary signs as required by the traffic control plan and remove signs when no longer required.</li> </ol>	EBMUD and EBMUD’s Contractor	EBMUD	Prior to and During Construction	X	X	X

<sup>1</sup> In EBMUD Standard Specifications, “District” = EBMUD; “Engineer” = EBMUD Engineer; “Contractor” = EBMUD Contractor; “Work” = Scope of Work for the Project



Appendix B EBMUD Practices and Procedures Monitoring and Reporting Plan

Impact Area	EBMUD Practices and Procedures <sup>1</sup>	Responsible for Implementation	Responsible for Monitoring and/or Enforcement	Timing of Implementation	Applicable Sites		
					Existing Dos Osos PP Site	Existing Dos Osos Reservoir Site	Proposed Dual Reservoirs Site
	<ul style="list-style-type: none"> <li>F. Haul routes for each construction phase shall be provided to all trucks serving the site during the construction period.</li> <li>G. For complete road closures, immediate emergency access to be provided if needed to emergency response vehicles.</li> <li>H. A minimum of twelve (12) foot travel lanes must be maintained unless otherwise approved.</li> </ul>						
<b>Utilities and Service Systems</b>							
Utilities and Service Systems f): Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs.	<p><b>EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements</b></p> <p>1.3 (C) Construction and Demolition Waste Disposal Plan:</p> <ol style="list-style-type: none"> <li>1. Prepare a Construction and Demolition Waste Disposal Plan and submit a copy of the plan for the Engineer's acceptance prior to disposing of any material (except for water wastes which shall be addressed in the Water Control and Disposal Plan).               <ol style="list-style-type: none"> <li>a. The plan shall identify how the Contractor will remove, handle, transport, and dispose of all materials required to be removed under this contract in a safe, appropriate, and lawful manner in compliance with all applicable regulations of local, state, and federal agencies having jurisdiction over the disposal of removed materials.</li> <li>b. The Contractor shall procure the necessary permits required by the local, state, and federal agencies having jurisdiction over the handling, transportation, and disposal of construction and demolition waste.</li> <li>c. Include a list of reuse facilities, recycling facilities and processing facilities that will be receiving recovered materials.</li> <li>d. Identify materials that are not recyclable or not recovered which will be disposed of in a landfill (or other means acceptable by the State of California and local ordinance and regulations).</li> <li>g. List the permitted landfill, or other permitted disposal facilities that will be accepting the disposed waste materials.</li> <li>h. Identify each type of waste material to be reused, recycled or disposed of and estimate the amount, by weight.</li> <li>i. Plan shall include the sampling and analytical program for characterization of any waste material, as needed, prior to reuse, recycle or disposal.</li> </ol> </li> <li>2. Materials or wastes shall only be disposed of at locations approved of by the District.</li> <li>3. Submit permission to reuse, recycle, reclaim, or dispose of material from reuse, recycling, reclamation, or disposal site owner along with any other information needed by the District to evaluate the acceptability of the proposed reuse, recycling, or disposal site and obtain acceptance of the Engineer prior to removing any material from the project site.</li> <li>4. All information pertinent to the characterization of the material or waste shall be disclosed to the District and the reuse, recycling, reclamation, or disposal facility. Submit copies of any profile forms and/or correspondence between the Contractor and the reuse, recycling, reclamation, or disposal facility.</li> <li>5. Submit name and Environmental Laboratory Accreditation Program Certificate number of laboratory that will analyze samples for suspected hazardous substances. Include statement of laboratory's certified testing areas and analyses that laboratory is qualified to perform. Submit prior to any laboratory testing.</li> </ol>	EBMUD and EBMUD's Contractor	EBMUD	Prior to and During Construction	X	X	X

<sup>1</sup> In EBMUD Standard Specifications, "District" = EBMUD; "Engineer" = EBMUD Engineer; "Contractor" = EBMUD Contractor; "Work" = Scope of Work for the Project





**DOS OSOS RESERVOIR REPLACEMENT PROJECT  
FINAL MITIGATED NEGATIVE DECLARATION  
RESPONSE TO COMMENTS**

**1. INTRODUCTION**

*1.1. Purpose of the Final Mitigated Negative Declaration*

This Response to Comments document has been prepared as Appendix C to the Mitigated Negative Declaration (MND) for the East Bay Municipal Utility District's (EBMUD) Dos Osos Reservoir Replacement Project (Project). The MND evaluated the potential impacts of the proposed Project and recommended mitigation measures to reduce significant and potentially significant impacts. This appendix responds to comments on and makes revisions to the MND as necessary. The California Environmental Quality Act (CEQA) and its implementing regulations (the "CEQA Guidelines") require the lead agency to, prior to approval of a project, consider the proposed MND together with any comments received during the public review process. Together with the MND, this Appendix C Response to Comments document constitutes the Final MND for the Project.

*1.2. Environmental Review Process*

On May 19, 2017, EBMUD (lead agency) released the MND for public review (State Clearinghouse No. 2017052049). The public review and comment period extended from May 19, 2017 through June 19, 2017. In May 2017, staff provided a Notice of Intent (NOI) to adopt the MND and copies of the MND to responsible or trustee agencies concerned with the Project. Staff also gave notice of intent to adopt the MND through filing with the Contra Costa County Clerk, publication in the Contra Costa Times, through posting at EBMUD's Administrative Building in downtown Oakland, and by direct postcard mailing to approximately 90 property owners and occupants near the Project facilities. During the 30-day public review period, copies of the MND were available at EBMUD's Administrative Building, the City of Orinda Library, and on EBMUD's website.

This Response to Comments document has been prepared based on the one comment letter received during the public review period.

*1.3. Report Organization*

This Response to Comments document is organized as follows:

- **Chapter 1: Introduction.** This chapter discusses the use and organization of the Response to Comments document.
- **Chapter 2: Responses to Comments.** This chapter contains a copy of the one comment letter received during the public review period and responses to comments contained in that letter. The one comment letter had been divided into ten comment categories by the author.

## Appendix C      Response to Comments

For this Response to Comments, each comment is bracketed in the margin of the letter and assigned a primary comment category number and a secondary, category-specific letter for that comment category. For example, the first comment category in the letter is “Comment Bowen-1: Notification,” and the first comment in that category is “Comment Bowen-1A.” The comment letter is followed by responses corresponding to the bracketed comments.

- **Chapter 3: Document Revisions.** This chapter presents changes to the MND that reflect text changes initiated by EBMUD staff subsequent to publication of the MND and in response to comments to clarify or modify the MND text. Revisions to the text and tables of the MND are contained in this chapter. Single-underlined text represents language that is being added to the MND.

The text changes and responses to comments do not constitute “substantial revisions” to the MND and, therefore, recirculation of the MND is not required pursuant to CEQA Guidelines § 15073.5.

### *1.4. Individuals Commenting*

One comment letter was submitted during the MND public review period by Michael Bowen, City of Orinda resident.

## **2. RESPONSES TO COMMENTS**

Chapter 2 presents the responses to comments received during the public review period. The one comment letter is reproduced in its entirety. The letter is followed by responses to its comments.

## Appendix C Response to Comments

### 2.1. Bowen Letter

#### DOS OSOS RESERVOIR REPLACEMENT PROJECT – MITIGATED NEGATIVE DECLARATION

Comments by:  
Michael Bowen  
23 Alta Vista  
Orinda, CA 94563

June 9, 2017

In general, EBMUD has made an excellent attempt to analyze the proposed project. Staff is to be commended for their effort to conduct environmental review early, and to provide safe, clean drinking water within the EBMUD Service Area. Nonetheless, the Mitigated Negative Declaration contains some deficiencies, and raises a number of questions, that staff should address in a recirculated environmental compliance document. Some of these are discussed, below:

1. NOTIFICATION: Public notice of this and other related projects can be improved.

The EBMUD interactive online map “construction near you” does not depict the Dos Osos Reservoir site as either an active or planned project as of 5.25.17, nor does it appear to include recent and related Alta Vista pipeline replacements nor the pending Westside project.

2. PROJECT NEED: As discussed in greater detail, below, the MND contains no discussion as to why the already impacted reservoir area cannot be used for replacement tank(s), if new infrastructure is needed to replace equipment “at the end of its useful life.”

3. ZONING, LAND USE AND AGRICULTURAL RESOURCES: The MND would benefit from acknowledging and discussing the dominant uses of the land in the project area.

The MND is technically correct in its dismissal of impacts to agricultural resources in the sense that no conversion of *prime* agricultural land is likely to result from the proposed Project. However, the MND lacks any analysis of potential impacts to agricultural uses in the Project area, the predominant use of which is livestock grazing. The area apparently proposed for the new reservoirs, and the access road to it, will result in the permanent conversion of valuable pasture located in and increasingly threatened by residential and commercial development. It may block current access routes or divide pastures, thereby impacting agricultural utility beyond the footprint of the actual construction. None of this is discussed. It is well understood that livestock operators managing herds in the greater Bay Area are increasingly challenged by market forces and

Bowen-1A

Bowen-1B

Bowen-1C

Bowen-2

Bowen-3A

Bowen-3B

Bowen-3C

## Appendix C Response to Comments

unavailability of suitable pasture. Even minor changes to the economic environment can render their operation uneconomical. EBMUD like their counterparts at the SFPUC have, over time, evolved to become better partners with the agricultural community in terms of promoting the use of livestock for pasture management and native species health. This evolution should continue, and remain part of project development. If conversion of agricultural land is to occur, EBMUD should contemplate offsetting those losses through purchase of adjacent vacant parcels, or other means, not because they necessarily must under CEQA, but because it would contribute to the long-term stewardship commitment EBMUD has made in the community.

Bowen-3C  
cont.

#### 4. AESTHETICS The analysis of aesthetics is fundamentally flawed and should be revised.

After acknowledging that the proposed Project is located in the SVRA, and then noting that it and “a portion of the new access road lie within a “ridgeline” designation of the Ridgeline and Environmental Preservation Overlay District (City of Orinda General Plan [1987], City of Orinda Title 17 Zoning Ordinance, Chapter 17.5, Ridgeline and Environmental Preservation Overlay District),” the MND notes that the proposed Project is in an area “identified as an area of great visual importance to the City of Orinda, the ridgeline may be considered a designated scenic vista.” The MND does not, however, mention the nearby DeLaveaga Trail and its use by frequent hikers.

Bowen-4A

Incomprehensibly, the MND dismisses these features, and the lines of sight to faraway hillsides and residences, and finds that, although “...there there is a possibility for the Project to cause aesthetic impacts on the Project site and in the surrounding area...”, the utilization of “BMPs” for construction crews, elevated earthen berms and “native tree” planting where no native trees historically existed, will result in no potential for significant impacts to the surrounding area.

It seems abundantly clear that the placement of two new reservoirs and earthen berms atop a designated ridgeline in a rural area within clear view to Vollmer Peak and downtown Orinda at least has the potential or significant impacts to the surrounding area, and in this person’s opinion will certainly significantly impact the bucolic viewshed of the existing setting. In fact, the proposed measures presumably designed to avoid a significant impact, themselves seem unnecessarily impactful Large earthen berms and out of context trees atop a scenic ridgeline would present a significant impact to aesthetic resources of the project area.

Bowen-4B

#### 5. PROJECT DESCRIPTION AND OBJECTIVES; The project description and purpose is unclear and seemingly conflicting.

The project description states that “(t)he project is designed to rehabilitate and replace critical aging water distribution facilities in order to increase both system reliability and operating efficiency.” Initially “fire flow” capacity appears to be the objective (1-3).

Bowen-5A

Appendix C Response to Comments

Elsewhere (2.3, 2-6) the discussion focuses on increasing pressure for the Dos Osos Pressure Zone and includes improving "operational flexibility," an undefined term in the MND or elsewhere.

Bowen-5A cont.

At 1-3 the MND states that "(t)he Orinda Fire Flow Comprehensive Engineering Study (EBMUD, 1999) determined that the Dos Osos Reservoir is located too low in elevation resulting in low-pressure areas along Alta Vista and Lomas Cantadas and should be replaced at a higher elevation. No supporting evidence is provided to determine if this was actually the case, is still the case, or if this situation would be rectified by simply upgrading pumps and lines (as has already begun, though is not analyzed under CEQA, see no. 3, below). Nor is it explained why this urgent priority is now being pursued more than 17 years after the earlier determination. The MND also neglects to mention that, for the City of Orinda, San Pablo Dam Road is the official fire line, and there is little interest or intent on the part of the local fire marshall to attempt firefighting on Upper El Toyonal in the event of a fire. While this is unfortunate, it does call into question why additional firefighting capacity is needed if there is no intent to use it.

Bowen-5B

Then, on Page 2-6, and in contrast to the earlier suggested rationale, the MND states "(t)o *improve level of service to existing customers*,(emphasis added) the dual reservoirs will be constructed approximately 70 feet higher in elevation on adjacent EBMUD owned watershed lands, the Siesta Valley Recreation Area, to provide increased water pressures to the Dos Osos Pressure Zone."

However, the MND includes no comparison of existing to proposed water pressures, nor does it demonstrate that water pressure is a problem for existing users, which it does not seem to be at highest elevations in the Dos Osos Pressure Zone. Domestic water pressure is high enough to warrant pressure reducers (and costly pumping charges, by the way) along the upper El Toyonal area.

Bowen-5C

6. GROWTH INDUCEMENT: The MND fails to analyze much less discuss the growth inducing implications of the proposed Project:

As discussed above, the inconsistently conveys the rationale for the project. Since the current tank is "8 times larger" than is needed to provide water to the "82 homes" it supplies, and since minimal storage reduction capacity is proposed, the "operational flexibility" cited but not explained in the MND strongly implies a greater level of service to the Dos Osos Pressure Zone. This, in turn, suggests a strong potential for growth inducement to currently undeveloped parcels.

Bowen-6A

Indeed, the MND states at 3-106 that:

*In April 2015, the City of Orinda adopted its 2015-2023 Housing Element which assumed a maximum of 108 multi-family residential units to be built by 2023. There is a potential for the proposed Project construction to overlap with completed buildout of the Housing*

Bowen-6B

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*Element....There are no other known City of Orinda major development projects planned for the near future that would occur in the same localized area as the proposed Project. (3-106).*

It is unknown what the authors meant to say by stating that there are “no other known City of Orinda major development projects planned....” Except perhaps that there are no current building permit applications before the City of Orinda for design review. However, there is a pending application before the Central Contra Costa Sanitation District to extend the sewer directly through EBMUD or adjacent parcels onto Dos Osos and into the immediate project area. In fact, project proponents of that development are contemplating slant-drilling operations through existing parcels to service a minimum of ten and as many as 24 undeveloped parcels, some of which are quite large and capable of supporting more than one residence, surrounding the existing reservoir and pump house. These developers will likely seek new hook-ups from EBMUD. This includes undeveloped lots that previously did not abut water mains (and therefore could not obtain service), but now do, thanks to the Alta Vista pipeline project which enjoyed no environmental review under CEQA, nor due notice to surrounding property owners (see no. 5, below). Presumably, the undefined “operational flexibility” afforded by the proposed Project will facilitate new hook-ups in previously un-servable areas limited by pressure zone limitations. However, the potential effects of this likely development is unmentioned in the MND.

Bowen-6B  
cont.

The MND effectively concludes that because there is no pending design review application before the City of Orinda (Fire Marshall, Central Sanitation District, Environmental Health, County of Contra Costa Building and Planning and even EBMUD itself go unmentioned) that therefore “...there are no other known City of Orinda major development projects planned for the near future that would occur in the same localized area as the proposed Project. (3-106).”

In summary, the MND ignores or avoids any discussion of the growth-inducing aspects of the proposed upgrade, the reasonable potential for Project related impacts to the area in combination with currently proposed development efforts, and measures or assurances that might avoid or mitigate such impacts. The MND is deficient in this regard and should be revised and recirculated.

7. PROJECT COMPONENTS POTENTIALLY PIECEMEAILED UNDER CEQA: The MND cites some and neglects other project components that are integrally related and adjacent to the proposed Project.

Construction began on a water line addition on Alta Vista in early May, 2017. Staff on site reported that it had been “planned for years.” However, construction began on this component with approximately four days notice to neighbors and no apparent CEQA compliance, perhaps on the presumption that it was categorically exempt. Workers

Bowen-7A

## Appendix C Response to Comments

typically mobilized with large trucks and barriers at 7:00 A.M., one hour before the announced 8:00AM start time, thereby blocking Alta Vista to all residents during morning commute hours and for the remainder of the day. Weeks later, pipes remain along Alta Vista, though all work appears to have ceased for the time being.

Bowen-7A  
cont.

The pipeline is connected to the Westside Reservoir/Dos Osos Pumping Plant, extended a water main up Alta Vista alongside previously unserved and undeveloped lots, and is clearly a component of the overall upgrade of the aging infrastructure. At the very least, the new pipeline system will have the capacity to handle the higher pressure resulting from the new pumps proposed for the Dos Osos Pumping Plant in the MND.

Similarly, the MND describes other projects and dismisses their potential for cumulative effects. The MND states:

*The Westside Project is scheduled to begin construction in 2020 and be completed by 2022; the proposed Project is scheduled to begin construction in 2023 and be completed by 2024. There will be no overlapping of construction timeframes for the two projects. EBMUD does not have any projects near the Project sites that would be implemented at the same time as the proposed Project. Because there are no other projects occurring within the vicinity or at the same time as the proposed Project, and because the Project's impacts would be reduced with implementation of mitigation measures, the Project's contribution to cumulative impacts would not be cumulatively considerable. (3-107).*

Bowen-7B

The Alta Vista pipeline (not evaluated under CEQA) caused significant disruption in the neighborhood. The Westside and proposed Projects since not "overlapping" guarantee four successive years of prolonged construction in the area and disruption to traffic flow and impacts in other categories, potentially at the same time builders are attempting to develop newly serviceable or soon to be serviced lots.

All of this work should logically have been analyzed together, in conjunction with the Dos Osos reservoir upgrade under CEQA, not "piecemealed" in advance of the MND in order to receive individual findings of no significant impacts as appears to be the case.

Bowen-7C

### 8. BIOLOGICAL SURVEY: The biological survey should be updates and revised.

The biological survey was conducted at the end of the sixth year of the most severe drought in recorded history in California. Remarkably, the many native grasses (e.g. *Nasella pulchra*) found in the proposed project area go unmentioned. The report's findings are therefore biased and suspect, and the study should be updated or partially repeated during a "normal" rainfall year.

Bowen-8

### 9. ROAD/RESERVOIR CONSTRUCTION IMPACTS: Construction impacts are not sufficiently analyzed.



**Appendix C      Response to Comments**

The description of the road construction fails to fully analyze the impacts of new road construction on a sensitive ridgeline in the Siesta Valley Recreation Area (SVRA). At 2-7 the MND fails to describe the width of 800' of new, impermeable asphalt road surface that will be added to sensitive watershed lands, so it is impossible to determine the amount of impermeable surface the project proposes.

Bowen-9A

The MND acknowledges that the construction will occur in the SVRA, but does not indicate whether siting will impact existing trails and recreational/agricultural uses.

Bowen-9B

The MND states that "(t)he access road will be constructed so that stormwater runoff will drain to surrounding vegetated hillslopes and infiltrate into native soils." It seems obvious that stormwater runoff drains off of roads, but it is little consolation that the MND acknowledges without further discussion that impermeable surfaces force stormwater runoff to infiltrate elsewhere. Following this logic to its conclusion implies that paving the entire SVRA will have no adverse environmental impact because it will simply "drain to surrounding vegetated hillslopes and infiltrate into native soils." This conversion of permeable agricultural grassland, not prime, but precious given its scarcity in a major metropolitan area, should be discussed and potentially compensated for or offset elsewhere in some manner.

Bowen-9A  
cont.

10. GEOLOGY AND SOILS: The MND's Geology and Soils Section is incomplete in its description of slide hazards, and inadequate in its deferred mitigation proposal. It requires revision.

The Geology and Soils Section references nearly in passing the extensive and frankly obvious existence of landslides in the project area, at least four of which occurred this year alone. However, this section makes no mention of the longstanding history of deep-seated slides in the project area, particularly the 1955 slide originating from the project area. Nor does the MND mention an extensive and deep-seated slide near the proposed Project site that imperiled a PG&E transmission line, the saving of which presented significant hardship to PG&E's contractors, not to mention risk to life and limb.

Bowen-10A

Instead, this MND discussion cites slides that potentially place the new construction at risk. However, the MND does not discuss the project's potential to destabilize soils in this mapped slide zone and contribute to new slides. Furthermore, the MND proposes possible "mitigation measures" for existing slides that are both undefined and could result in significant impacts in various CEQA resource categories. For example, "mitigation measures" GEO-3 and GEO-4 propose various actions such as removing landslide debris or installing debris basins that may or may not occur within the project area and have not been analyzed in the MND. Since the proposed actions may be comparable in extent to the proposed project itself, or even exceed project impacts, the MND should not be

Bowen-10B

Bowen-10C

## Appendix C      Response to Comments

certified unless and until a geotechnical evaluation has been completed, and the mitigation measures (now undefined) can be specifically described, quantified and analyzed in extent.

Bowen-10C  
cont.

In conclusion, we are grateful to EBMUD for its longstanding stewardship and improvement of watershed lands, for its staff's diligence in pursuing its mission, for its early commencement of this CEQA process, and for the opportunity to comment on this proposed Project.

Thank you.



## Appendix C      Response to Comments

### *2.2. Response to Bowen Comments*

#### *Response to Comment Bowen-1A*

The commenter states that the MND should be recirculated in response to the issues raised in the comment letter. An MND is only required to be recirculated if substantial revisions to the document are made after the public is notified of the document's availability, but prior to its adoption. See CEQA Guidelines § 15073.5. The responses to comments and MND text edits identified below do not constitute "substantial revisions" to the MND and, therefore, recirculation of the MND is not required. The text edits to the MND do not identify new significant impacts but merely clarify information already presented in the MND.

Consistent with CEQA Guidelines § 15073, EBMUD provided a public review period of 31 days (May 19 through June 19, 2017) and provided an NOI to adopt the MND and copies of the MND to responsible or trustee agencies concerned with the Project. In accordance with CEQA Guideline § 15072, EBMUD gave notice of intent to adopt the MND through filing with the Contra Costa County Clerk, publication in the Contra Costa Times, through posting at EBMUD's Administrative Building in downtown Oakland, and by direct postcard mailing to approximately 90 property owners and occupants located contiguous to and within approximately 500 feet of the affected facilities; a postcard was sent to the commenter's address as part of this mailing. During the 31-day public review period, copies of the MND were available at EBMUD's Administrative Building, the City of Orinda Library, and on EBMUD's website.

#### *Response to Comment Bowen-1B*

The Project was placed on EBMUD's website on May 18, 2017 under "Construction in My Neighborhood" and identified on the map view with a blue marker at the location of the project, designated as "Planned" in the legend. In the text version (located under the map view), the Project is listed under the "Planned" category of projects.

#### *Response to Comment Bowen-1C*

The online "Construction in My Neighborhood" map and text version are intended to show only major EBMUD capital improvement projects, not routine EBMUD facility and pipeline improvement projects. The "Planned" projects listed on the website are major capital improvement projects for which the EBMUD planning process and public outreach process are currently underway. The Westside Project is currently in the conceptual planning stage and not listed on the website.

#### *Response to Comment Bowen-2*

On pages 2-3 and 2-4 (Project Description), the MND explains that the existing Dos Osos Reservoir is located too low in elevation and should be replaced at a higher elevation. On page 2-6, the MND states, "To improve level of service to existing customers, the dual reservoirs will be constructed approximately 70 feet higher in elevation," and also states on page 2-12 that,

## Appendix C      Response to Comments

“The existing Dos Osos Reservoir is located about 300 feet directly northeast of the proposed reservoirs site on a 0.38-acre parcel at 8 Los Norrabos, roughly 70 feet lower in elevation.” Since replacement of the Dos Osos Reservoir at the existing site will not improve existing water pressure deficiencies in the Dos Osos Pressure Zone, raising the Dos Osos Reservoir to a higher elevation is required to both replace aging infrastructure and improve low-pressure areas, thereby improving the level of service to existing customers.

### Response to Comment Bowen-3A

The MND does discuss the dominant land use on the new dual Dos Osos Reservoirs Project site: open space and watershed land uses. On page 3-10 (Agriculture and Forestry Resources), the MND states that the new dual Dos Osos Reservoirs site is located on watershed lands with open space and watershed management uses and that the site is not zoned for agricultural use nor under a Williamson Act contract for agricultural preservation.

Livestock grazing is a way to manage watershed lands by managing vegetation for fire control and pest management and to generate revenue for EBMUD. The EBMUD Range Resource Management Plan (EBMUD, 2001) states on page 1-9 that “Livestock grazing will be used primarily as a tool to manage vegetation to meet goals for water quality, biodiversity, and fire protection”; a stated objective of the livestock grazing program is to “eliminate or restrict grazing in areas where substantial impacts on water quality, biodiversity, fire control, or other management objectives may occur.” (EBMUD Low Effect Habitat Conservation Plan, 2008.)

To clarify “open space and watershed uses” at the new dual tanks site, the following language is added to the Agriculture and Forestry Resources section of the MND: “Open space and watershed management use in EBMUD’s Siesta Valley watershed land includes dry season livestock grazing, which takes place on nine separate pastures within the approximately 1,000-acre watershed land parcel. Objectives of EBMUD’s livestock grazing program include managing vegetation (e.g., for fire hazard reductions); ‘eliminate or restrict grazing in areas where substantial impacts on water quality, biodiversity, fire control, or other management objectives may occur.’ (EBMUD Low Effect Habitat Conservation Plan, 2008.) The only livestock grazing activity currently allowed within the Siesta Valley grazing allotment is dry season livestock grazing. In accordance with EBMUD’s livestock grazing program objectives, the dry season livestock grazing rotations vary from year to year depending on weather patterns, noxious weed populations, and fire fuel density. EBMUD’s livestock grazing program objectives would continue to be met following the construction of the new dual reservoirs.”

### Response to Comment Bowen-3B

The comment states that “the area apparently proposed for the new reservoirs, and the access road to it, will result in the permanent conversion of valuable pasture.” The footprint of the new dual reservoirs site and approximately 300 feet of the proposed 800-foot-long access road will permanently replace approximately 0.24 acres of existing grassland. The remaining portion of the proposed access road lies outside the fenced watershed lands or over the existing dirt and gravel fire access road. This reduction in grassland area of 0.24 acres is less than significant given that it only comprises roughly 0.03 percent of the total grazing allotment area (922 acres)

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in the Siesta Valley Recreation Area (SVRA). The Project will only result in a fraction of an acre decrease in available dry season grazing area at the periphery of the watershed land, which is less than one tenth of one percent of the approximately 1,000-acre watershed land parcel.

Also, the comment states that the Project “will result in the permanent conversion of valuable pasture located in and increasingly threatened by residential and commercial development.” The Project would be located on EBMUD-owned watershed lands which are not zoned or planned to include future residential or commercial development. The comment does not describe how, nor has EBMUD been able to identify any ways in which the Project’s small footprint would contribute to any effects resulting from residential or commercial land use conversions in the area.

The comment also states that the Project “may block current access routes or divide pastures.” The new dual Dos Osos Reservoirs will be situated within the Lower Orinda pasture of the SVRA grazing allotment. As shown in Figure 2.4 (page 2-6) of the MND, the new dual reservoirs will be located at the northern periphery of the Lower Orinda pasture near the existing watershed lands perimeter fencing, with no pastures beyond to the north. Figure 2.4 (page 2-6) of the MND also shows that the new fencing would encircle the approximately 0.16-acre footprint of the new dual tanks. Thus, the fencing of the dual reservoirs site will not divide the Lower Orinda pasture nor will it block an existing access route. The access road to the new dual tanks would not be fenced, allowing cattle to traverse the road freely. Thus, the proposed access road will not divide any pasture or block an existing access route.

Because livestock would not be excluded from the access road and would be allowed to graze in areas surrounding the 0.16-acre fenced site for the new tanks, the Project will not block grazing access routes or divide pastures or otherwise impact agricultural utility beyond the Project’s footprint.

For these reasons, the Project would not interfere with the objectives of EBMUD’s livestock grazing program nor result in any substantial conversion of land use or loss of access to grazing land.

### Response to Comment Bowen-3C

Comment 3C states that “It is well understood that livestock operators managing herds in the greater Bay Area are increasingly challenged by market forces and unavailability of suitable pasture. Even minor changes to the economic environment can render their operation uneconomical. . . . If conversion of agricultural land is to occur, EBMUD should contemplate offsetting those losses through purchase of adjacent vacant parcels, or other means.”

CEQA only requires the consideration of economic impacts to the extent that those impacts would lead to potentially significant physical changes in the environment. See CEQA Guidelines § 15064(e). The Project requires removal of only 0.24 acres of pasture lands from the total acreage granted to the grazing tenant affected by the Project, approximately 0.03 percent of the tenant’s entire grazing lease acreage over the SVRA and other watershed lands. The commenter has not provided any evidence that such a small reduction in available

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pasture land would render grazing operations uneconomical or that the Project could otherwise result in economic impacts that would lead to physical changes in the environment.

Overall, the removal of 0.03 percent of grazing land allotment in the SVRA is insignificant, and the economic impacts of this loss of grasslands to livestock grazing do not warrant EBMUD offsets. As stated in the Range Resource Management Plan, the objective of the grazing program is to use grazing as a tool to manage vegetation for EBMUD resource needs, and in that way, EBMUD has effectively partnered with livestock operators to allow grazing in ways that contribute to its stewardship of protection of its watershed lands. EBMUD's goals and objectives are focused on successful management of those lands to protect water quality, not to protect grazing opportunities.

### Response to Comment Bowen-4A

In response to this comment, the following language is added to the Aesthetics section of the MND to address the presence of the De La Veaga Trail: “The De La Veaga Trail is a 2.9-mile EBMUD trail in the Siesta Valley Recreation Area (SVRA) that extends roughly southeast to northwest across the SVRA. Trail users must have an EBMUD Trail Use Permit and must gain access to the trail from the De La Veaga staging area off of Camino Pablo. For much of its length, the new dual tanks will not be visible from the De La Veaga Trail, because the new dual tanks will be located just over elevated ridge lines from the trail alignment. However, at its nearest point, the De La Veaga Trail is approximately 500 feet southeast of the new dual tanks site, and the tops of the new dual tanks will be visible approaching this point from a portion of the De La Veaga Trail in either direction.”

In response to this comment and the subsequent Comment Bowen-4B, Figures 3.1 through 3.8 are added to Section I, Aesthetics, of the MND to provide visual simulations of primary viewpoints of the new dual reservoirs. Figures 3.1 and 3.2 show the locations of the viewpoints of the simulations in relation to the new dual reservoirs site. Figure 3.3 shows the simulated view of the new reservoirs from the De La Veaga Trail 500 feet southeast of the new reservoirs. From this vantage point, only the upper portions of the new reservoir tanks will be visible. Figure 3.4 shows the simulated view of the new reservoirs from a pedestrian gate along the De La Veaga Trail (approximately 1,000 feet away) on the ridge above the new reservoir site. From this vantage point, only small portions of the new reservoirs will be visible through the existing tree line between the ridge and the new reservoirs. Both views of the new reservoirs from the De La Veaga Trail will be minimal given the existing hillslope topography and vegetation; thus, impacts from short- and long-distance views from the trail are less than significant.

### Response to Comment Bowen-4B

The comment concerns the MND's conclusion that the Project would not substantially degrade the existing visual character or quality of the Project site and its surroundings. The comment suggests that this conclusion was based solely on incorporation into the Project of standard construction specifications and design features such as construction of earthen berms planted with trees to screen views of the Project facilities. The MND's conclusion was based not only on those aspects of the Project, but also on detailed analysis of site-specific characteristics and the

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likelihood that the Project would affect views of the surrounding area. For example, on page 3-7, the MND discusses lines of sight to the new dual Dos Osos Reservoirs and states, “The closest residences are located at 9 Los Norrabos, approximately 340 feet from the dual reservoirs site to the northeast, and 77 Tres Mesas, approximately 700 feet from the site to the northwest. Both residences do not have clear views of the new dual reservoirs site, because they are approximately 50 feet lower in elevation, and views to the new dual reservoirs are further obscured by existing trees that will remain after the Project is completed. However, from the north, an existing horse corral at the top of Tres Mesas has a direct line of sight to the new dual reservoirs site.” Figure 3.5a shows a photo of the existing conditions at the new dual reservoirs site, and Figure 3.5b shows a simulated view of the new reservoirs, retaining wall, security fencing, constructed earthen berms, and planted trees from the horse corral. While these components of the Project will be visible from the horse corral, there is no public access from the private Los Norrabos or Tres Mesas roadways, and no residences will have that specific vantage point. As the visual simulation in Figure 3.5b shows, the constructed earthen berms and planted trees (included as part of the Project described in the Project Description) will integrate into the existing landscape, given the existing topography and vegetation. From this vantage point, short-distance view impacts on sensitive receptors will be less than significant.

The comment states that the “Large earthen berms and out of context trees atop a scenic ridgeline would present a significant impact to aesthetic resources of the project area.” From the short-distance view shown in Figure 3.5a, the proposed earthen berms and trees, while visible, will integrate into the existing landscape, as described above, and view impacts on sensitive receptors will be less than significant. From long-distance views, the proposed earthen berms and planted trees will be indiscernible from the surrounding landscape and vegetation.

The comment also states that the new dual reservoirs and earthen berms would be “atop a designated ridgeline.” This is inaccurate. The Contra Costa County (CCC) Zoning Administrator found the Project in conformance with the County General Plan, and the CCC staff report stated that the “proposed reservoir site is approximately 100 to 150 feet below a scenic ridge identified in the Open Space Element.”

Page 3-7 of the MND continues, "From farther away to the northwest, residences at 263 and 62 Lomas Cantadas (approximately 100 feet higher in elevation) have partially obscured views of the new dual reservoirs site from roughly 1,500 feet away. These views are obscured by existing trees that will remain after the Project is completed. From the east, residences east of Camino Pablo, greater than a mile away, at 623 and 627 Watchwood Road have indistinct long-distance views of the new dual reservoirs site." Figure 3.6 shows the simulated view from Lomas Cantadas northwest of the new reservoirs site. While there is a line of sight to the new reservoirs site through a break in the tree line, the new green exterior paint color of the reservoirs and vegetated screening will make the new tanks indiscernible from the existing vegetation. Along Watchwood Road north of downtown Orinda, greater than a mile away and approximately 100 to 150 feet higher in elevation than downtown Orinda, private residences do have an unobstructed view of the new reservoirs site. However, as Figure 3.7 shows, given the distance and the exterior paint color and vegetated screening, the new reservoirs will be indiscernible from the surrounding landscape.

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The comment also references views from Vollmer Peak. Vollmer Peak is roughly 4,000 feet away and 500 feet higher in elevation than the new dual reservoirs. Figure 3.8 shows the simulated view from Vollmer Peak of the new reservoirs site. While there is an unobstructed line of sight, given the distance and the exterior paint color and vegetated screening, the new reservoirs will be nearly indiscernible within the surrounding landscape. The comment also references downtown Orinda; however, given the existing hillslope topography southeast of the new reservoirs site, downtown Orinda will not have views of the new reservoirs.

As stated in the MND on page 2-7, “The new dual reservoirs’ exteriors and roofs will be painted green to blend into the hillside. The proposed excavation will situate the new dual reservoirs into the hillside, resulting in the new dual reservoirs being recessed in, and not protruding from, the hillside. The retaining wall surface will also be designed to minimize contrast with the surrounding hillside,” and on pages 3-7 and 3-8 of the MND, “the new dual reservoirs’ orientation, exterior colors, and excavation into the hillslope below existing grades will screen the new dual reservoirs from short- and long-distance views. Also, the Project includes construction of earthen berms and the planting of trees that will screen the new dual reservoirs from short- and long-distance views. Thus, the Project will not degrade the existing visual character or quality of the site, and the Project impacts are less than significant.”

As this analysis shows, the MND’s conclusion regarding impacts to the visual character or quality of the Project site and its surroundings remains valid, and the commenter has not provided any evidence that the Project would result in significant aesthetic impacts.

### Response to Comment Bowen-5A

In the MND, the Project description and purpose are not conflicting. Please see Response to Comment Bowen-2 (Project Need) regarding the need to construct the tanks at a higher elevation. Although the Orinda Fire Flow Comprehensive Engineering Study (EBMUD, 1999) (1999 Fire Flow Study) was sourced for information in the MND in regard to low-pressure areas along Alta Vista and Lomas Cantadas, improved fire flow is not a stated objective in the MND. To clarify the MND’s description of the Project objectives, the following text is added to the Project Objective section of the MND:

“The Project objectives include:

- Rehabilitate and replace critical aging water distribution facilities; and
- Improve level of service in the pressure zone by raising the elevation of the proposed new dual Dos Osos Reservoirs to minimize low-pressure areas; and
- Increase operational flexibility in the pressure zone by replacing the existing Dos Osos Reservoir with new dual Dos Osos Reservoirs.”

To clarify the definition of “operational flexibility,” the following language is added as a footnote to the Proposed Project section (page 2-6) of the MND: “Operational flexibility is derived from the construction of two tanks. One tank can be removed from service during low-demand periods while the other remains in service. For example, during the winter season when there is less demand for potable water, only one tank could be used, which results in less



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water being stored overall as water is circulated through the tank and water distribution system. Reducing water storage to meet demand improves water quality by decreasing water age (decreasing the time water is in the tank). Similarly, one tank can be removed from service for maintenance (cleaning and/or repairs) while the other tank remains in service. During periods of high demand, both tanks can be used to meet customer demand.”

### Response to Comment Bowen-5B

The comment misconstrues the MND’s citation of the 1999 Fire Flow Study. As explained in the Response to Comment Bowen-5A, that study provided objective evidence of the existence of low-pressure areas that this Project is designed in part to address. While the Project may result in improved fire flows, at no point does the MND state that improving fire flows is the objective of this Project. Please also see Response to Comment Bowen-2 (Project Need) regarding the need to construct the tanks at a higher elevation.

Nor is improving low pressure the only objective of this Project. As stated on page 2-3 of the MND, “the reservoir interior and exterior require recoating, and the existing wood roof is deteriorating and requires full replacement.” On page 2-4, Section 2.2 (Reservoir and Pumping Plant Deficiencies) of the MND lists the deficiencies that the Project would address. To summarize, the Project replaces aging infrastructure and, at the same time, takes advantage of the need to replace the reservoir (as dual tanks) in a location that would also improve level of service and water quality for existing customers and improve operational flexibility for EBMUD. While the existence of low-pressure areas was identified in the 1999 Fire Flow Study, at that point in time, Dos Osos Reservoir was not near the end of its useful life<sup>1</sup> and had been recoated only two years prior in 1997 (see page 2-4 of the MND). EBMUD’s Infrastructure Rehabilitation Plans identify and prioritize facility rehabilitation projects based on facility condition (e.g., safety and structural deficiencies), regulatory requirements, and criticality with respect to the water distribution system. As a result, at the time of the 1999 Fire Flow Study, reservoir replacement was not warranted. However, over time, the reservoir aged and deteriorated, such that in 2012, “The Dos Osos Reservoir was evaluated and recommended for rehabilitation in the EBMUD Infrastructure Rehabilitation Plan for Distribution Reservoirs 2012 Update” (page 1-3 of the MND). No improvements have been made in the Dos Osos Pressure Zone to increase pressure in low-pressure areas identified in the 1999 Fire Flow Study.

### Response to Comment Bowen-5C

In response to this comment, the following language is added to the Proposed Project section of the MND: “Raising the reservoir by approximately 70 feet would increase pressure up to 30 pounds per square inch (psi) throughout the Dos Osos Pressure Zone. Under high summertime water demands, existing low-pressure areas of the Dos Osos Pressure Zone experience pressures as low as approximately 5 to 15 psi. These low pressures are inconsistent with accepted standards for water service. For example, EBMUD strives to maintain standard water service at approximately 40 psi. Maintaining adequate water pressure throughout a

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<sup>1</sup>The average useful lives of wood roofs and steel reservoirs are approximately 40 years and 75 years, respectively. Steel reservoir coating has a useful life of approximately 25 years.

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pressure zone is required to meet consumer demands and provide safe and healthy drinking water.

Based on existing customer elevations within the Dos Osos Pressure Zone, approximately 20 existing water services would require new house pressure regulators to be installed by EBMUD due to water pressure increases. A house pressure regulator would be installed on each property owner's water line and would be typically installed near the hose bib at the entry point to the house or building to reduce the water pressure to the indoor plumbing and outdoor irrigation systems, in accordance with the Uniform Plumbing Code. It is routine for EBMUD to provide house pressure regulators as part of facility and pipeline improvements and pressure zone changes. The new pressure regulators will be installed by an EBMUD-provided plumbing contractor, in accordance with the Uniform Plumbing Code."

The comment also mentions "costly pumping charges" along the upper El Toyonal area. It is assumed this is referencing the EBMUD elevation surcharge. The elevation surcharge is the charge applied to customers' accounts where meters are served by pressure zones at designated higher elevations. The elevation surcharge is a means of allocating the additional costs incurred by EBMUD for pumping and storing water at higher elevations to serve customers at those higher elevations. All services within the Dos Osos Pressure Zone are currently subject to the elevation surcharge, but this surcharge will not change as a result of the Project.

### Response to Comment Bowen-6A

Please see Response to Comment Bowen-5A, which clarifies the definition of "operational flexibility." As stated on page 2-4 of the MND, *during winter demands*, the reservoir is approximately eight times larger than needed. However, the reservoir's full capacity is necessary to meet customer demands during summer months when peak annual demands typically occur. The construction of dual tanks will address the issue of *wintertime* excess storage, as described in Response to Comment Bowen-5A. On page 3-93, the MND states, "The new dual reservoirs together have the same water storage capacity as the existing Dos Osos Reservoir. The existing customers are all within EBMUD's Ultimate Service Boundary, which is a defined service and growth boundary adopted by EBMUD. Therefore, the Project is not extending growth into a new area or creating momentum for new development within the existing area." The proposed total Dos Osos dual reservoirs' storage of 0.24 million gallons (same as the existing reservoir capacity) is required to meet peak potable water demands and maintain fire flow storage for the Dos Osos Pressure Zone. The comment does not explain how maintaining the same reservoir capacity as that currently existing would induce or otherwise serve as an impetus for growth in the area served by the reservoir. Nor is it reasonably possible for maintaining the existing reservoir capacity to result in such impacts.

### Response to Comment Bowen-6B

The MND text cited by the comment concerns the potential for the Project to contribute to cumulative traffic impacts during construction by overlapping with other reasonably foreseeable future projects, not growth-inducing impacts. As noted in Response to Comment Bowen-6A, above, it is not reasonably possible for a project which maintains existing reservoir capacity –

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capacity currently required to meet existing peak and fire demands – to induce population growth.

The comment discusses a proposed Central Contra Costa Sanitation District (CCCSD) sewer project in the area. CCCSD is currently reviewing an application for an approximately 2,700-foot-long, applicant-funded sewer main extension of the CCCSD sanitary sewer network along El Toyonal, Alta Vista and Dos Osos Road in Orinda that was submitted to CCCSD in May 2017 (CCCSD Project). The current timeline for approval or construction of any proposed sewer main extension in the upper El Toyonal neighborhood is unknown, and future development of vacant, residential parcels currently without sanitary sewer service cannot occur until a sanitary sewer is installed. There has been controversy surrounding sewer main extensions in this neighborhood since the 1970s, and successful implementation of the CCCSD Project would require property owner participation and project “buy-in.” Currently, the engineering and monetary feasibility of such an applicant-funded sewer main extension is unknown. Again, as noted above, by maintaining the existing reservoir capacity, the Project would not induce population growth. Nor would water pressure improvements resulting from the Project make it possible to serve more customers than is currently possible in the Dos Osos Pressure Zone. Thus, even if the CCCSD Project is implemented in the future and itself induces population growth and development, the Dos Osos Project would not contribute to that growth.

The comment also suggests that a previously constructed EBMUD pipeline project – Alta Vista pipeline, described in Response to Comment Bowen-7A below – would allow water service connections that were previously prohibited for parcels that now front the EBMUD pipeline project. Although vacant parcels fronting the Alta Vista pipeline could obtain water service from that pipeline, those parcels were already eligible to receive water service from EBMUD prior to the Alta Vista pipeline installation. Currently, vacant parcels within the Dos Osos Pressure Zone that are located within EBMUD’s current service area may apply for water service, regardless of whether they front a water main, and may obtain water service from either an existing water main or by installing a water main in accordance with EBMUD’s Regulations Governing Water Service to Customers of the East Bay Municipal Utility District (Regulations). Section 4 of EBMUD’s Regulations describes how main extensions are typically required when a principal part of the premises to be served does not lie along an available water main with adequate flow and pressure. However, residential lots do not have to front a water main to obtain service, as EBMUD’s Regulations contain exceptions on water main frontage requirements; Section 4.C of the Regulations lists the exceptions to typical main extension installation, including conditional services where the premises may be served at a location other than the principal frontage.

The comment also states that “the undefined ‘operational flexibility’ afforded by the proposed Project will facilitate new hook-ups in previously un-servable areas limited by pressure zone limitations.” The term “operational flexibility” is misapplied in this comment. As described in Response to Comment Bowen-5A above, the term “operational flexibility” applies only to the operation of the proposed dual reservoirs as single or dual tanks, depending on the level of demand, water quality issues, or required maintenance outages to service the reservoirs. (The improvements in water pressure resulting from the Project would not facilitate water hook-ups in new areas.)

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Further, as explained above, the Project will maintain, not increase, the existing reservoir capacity and, therefore, will not induce growth in the area served by the reservoir.

### *Response to Comment Bowen-7A*

Construction of approximately 385 feet of new eight-inch, high-density polyethylene pipeline to connect two existing EBMUD pipelines in Alta Vista roadway (Alta Vista Pipeline Project) began and was completed in approximately two weeks in May 2017. The Alta Vista Pipeline Project is statutorily exempt from CEQA under Public Resources Code § 21080.21, which exempts from CEQA compliance requirements the installation of pipelines less than one mile in length within public streets or highways. In addition, EBMUD distributed door hangers to affected residents one week before commencement of the two-week construction period.

The Alta Vista pipeline work stemmed from a leak in a six-inch, cast-iron EBMUD pipeline built in 1948 located between Vista Del Orinda and Lomas Cantadas. Due to the leak history and age of the pipe, as well as its location in an inaccessible EBMUD right-of-way in a steep hillside, the 1948 pipeline was abandoned, and the Alta Vista pipeline was constructed to maintain current levels of service in the Dos Osos Pressure Zone following abandonment of the 1948 pipeline.

System improvements such as the Alta Vista Pipeline Project are routinely completed as part of EBMUD's maintenance of its existing pipeline network and, contrary to the commenter's suggestion, the Alta Vista pipeline is not part of the Dos Osos Project's infrastructure upgrades. Additionally, while the Alta Vista pipeline will have the capacity to handle higher pressure resulting from the pump upgrades, all existing pipelines in the Dos Osos Pressure Zone currently have the capacity to handle the higher pressure resulting from the proposed rehabilitation of the Dos Osos pump units. Further, given that the Alta Vista Pipeline Project was completed to address abandonment of the 1948 pipeline, it was in no way connected to or required as a result of the Project, and similarly, did not create the need for the Project. The two projects could be implemented independently; the Alta Vista Pipeline Project was not a prerequisite to the Project, nor is the Project a subsequent stage or consequence of the Alta Vista Pipeline Project. Neither project was proposed as a result of the other. Also, neither project would change the scope or nature of the other project. As such, the Alta Vista pipeline was not required to be analyzed as part of the Project, and the MND did not improperly piecemeal the Project by failing to analyze the Alta Vista pipeline as a Project component.

As explained in Response to Comment Bowen-6B above, residential lots do not need to front a water main to obtain service. While lots adjacent to the Alta Vista pipeline improvement work may be undeveloped and currently do not have water service, EBMUD had the ability to provide service to those lots even before the Alta Vista pipeline improvement work.

### *Response to Comment Bowen-7B*

The MND states on pages 3-106 and 3-107 that the Westside Pumping Plant Relocation Project (Westside Project) "consists of relocation of the existing Westside Pumping Plant, located at 20 El Rincon, to the site of the existing Encinal Pumping Plant, located at 4 Madera Lane, and associated pipeline improvements in the El Toyonal neighborhood; it also requires the

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demolition of the existing Encinal Pumping Plant, demolition of the existing Westside Pumping Plant, and construction of a new Westside Pumping Plant. The Westside Project includes the replacement of the existing Encinal Reservoir at 20 El Rincon with a new Encinal Regulator. The Westside Project will replace aging infrastructure, improve water quality operations efficiency by removing excess water storage, and improve domestic and emergency water service reliability.”

The MND states on page 3-106 that “For any impacts to act cumulatively on any past, present, or any reasonably foreseeable projects, these projects would have to have individual impacts in the same resource areas at the same time and in the same localized area as the proposed Project.”

The Project’s potential construction impacts will not linger after completion of the Project and, therefore, would not combine with other projects’ impacts in a way that could cause cumulatively considerable impacts to occur. For example, as shown in Table 3.6 on page 3-98 of the MND, the trip generation analysis for the Project shows one to two truck trips maximum per hour for the second half of the Project duration; this is reduced from the maximum hourly one-way truck trips of eight trucks per hour estimated for the first half of the Project duration. In this manner, Project traffic on El Toyonal neighborhood roadways will be greatly tapered for the second half of the Project and will cease entirely before the start of the Westside Project. As detailed in the Project Description, a number of EBMUD standard practices and procedures applicable to all EBMUD projects have been incorporated into the Project, including Standard Construction Specification 01 14 00, Work Restrictions, and Standard Construction Specification 01 55 26, Traffic Regulation. These EBMUD Standard Construction Specifications have been incorporated into the Project and include provisions for limiting haul and material trucks during construction to time periods outside of peak commute hours and require implementation of a Traffic Control Plan that minimizes impacts to traffic circulation. As standard practice and procedures applicable to all projects, these same requirements would also be incorporated into the Westside Project, thus ensuring project impacts related to short-term construction traffic from the Project and the subsequent Westside Project would be less than significant. The comment also mentions “builders are attempting to develop newly serviceable or soon to be serviced lots,” but these potential developments are unknown and speculative; the commenter has not provided any evidence suggesting that significant cumulative impacts would result from the Project and other projects in the Project vicinity.

Because the Westside Project will not overlap with the Project, because the Project’s construction impacts would not linger following Project completion, and because the Project’s individual impacts would be reduced to insignificant levels with implementation of mitigation measures and EBMUD practices and procedures, the Project’s contribution to cumulative impacts would not be cumulatively considerable.

### Response to Comment Bowen-7C

The portion of this comment that references piecemealing with regard to the Alta Vista pipeline is discussed in Response to Comment Bowen-7B above.

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The Westside Project, located outside of the Dos Osos Pressure Zone and within the Encinal and Westside Pressure Zones, is functionally hydraulically separate from the Project. The two projects can be implemented independently; the Westside Project is not a prerequisite to the Project, nor is the Project a subsequent stage or consequence of the Westside Project. Neither project is proposed as a result of the other; each project will improve aging infrastructure and improve water service reliability in their respective, separate pressure zones. Also, neither project will change the scope or nature of the other project. As such, the Westside Project was not required to be analyzed as part of the Project, and the MND did not improperly piecemeal the Project by failing to analyze the Westside Project as a Project component.

### Response to Comment Bowen-8

The comment suggests that the biological survey conducted for the Project was inappropriately timed and that native grass species “found in the proposed project area” were not identified by the survey. Timing for the surveys was determined by well-qualified, professional biologists and occurred in the summer of 2015 and in the spring and early summer of 2016, a year in which precipitation levels on EBMUD’s East Bay watershed lands were 101 percent of average as of April 10, 2016. As noted in the Biological Resources Evaluation for the Project, “[b]iologists conducted a review of sensitive species with the potential to occur within the study area, then determined survey dates which would coincide with the bloom periods of each of these species. Two biologists surveyed the Project footprint during each of these periods: June 29, 2015; March 3, 2016; May 27, 2016.” Thus, these surveys were appropriately timed to identify any special-status botanical resources in the Project area, including any special-status native grasses that might be present in the area.

The biological impact analysis in the MND and the Biological Resources Evaluation focused on potential impacts to special-status and locally rare plant species – not widespread, common species such as *Nasella pulchra* (now known as *Stipa pulchra*). Special-status plant species include species listed as endangered, threatened, rare, or proposed for listing by the U.S. Fish and Wildlife Service or the California Department of Fish and Wildlife (CDFW), plant species listed in the statewide California Native Plant Society (CNPS) rare and endangered plant inventory, and locally rare plant species. *Stipa pulchra* is not a special-status species nor is it a locally rare species; therefore, it was not considered a protected plant species in the MND’s analysis. Also, the Project site was found to be dominated by non-native annual grasses, not native grassland species such as *Stipa pulchra*. Because the *Stipa pulchra* (which is common throughout California) is not a special-status species and the Project site is dominated by non-native annual grasslands, Project impacts to the species, if any, would not be significant.

While the biological surveys for the Project were appropriately timed to identify sensitive species and performed by qualified professionals, to the extent that any sensitive species present in the Project area were not identified, Mitigation Measure BIO-1 ensures that impacts to those species would be mitigated to less than significant levels.

Mitigation Measure BIO-1 (pages 3-28 and 3-29 of the MND) includes the following avoidance or minimization measures for sensitive plant species:

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- “Before beginning construction, all Contractor construction personnel are required to attend an environmental training program provided by EBMUD of up to one day for site supervisors, foremen and Project managers and up to 30 minutes for non-supervisory Contractor personnel. Contractor construction personnel will receive a CNPS-approved worker environmental awareness training from a qualified biologist (EBMUD). The training will include a description of the sensitive plant species in the Project vicinity, including natural history and habitat, the general protection measures to be implemented to protect the species, and a delineation of the limits of the work areas. Contractor construction personnel will be required to sign documents stating that they understand that take of special-status plant species and destruction or damage of their habitat would be a violation of state and federal law.
- Project boundaries will be delineated and flagged prior to construction by the Contractor. All construction activities will be conducted within the delineated Project boundaries.
- Staging areas and construction access points will be delineated in the field away from sensitive plant species, and all staging will occur within these designated areas.
- In the spring prior to construction, a qualified botanist (EBMUD) will conduct preconstruction sensitive plant surveys in all areas where ground disturbance will occur. Any observed sensitive plant species will be mapped and flagged for avoidance where feasible. EBMUD will notify CDFW or CNPS upon discovery of any sensitive plant species during preconstruction surveys.
- Sensitive plant species will be avoided or minimized by limiting ground disturbance where sensitive plants occur.
- If California ponyfoot or rayless arnica cannot be avoided, EBMUD will salvage the affected plants and transplant them to a similar habitat in the Project vicinity. The re-established population should achieve a 1:1 ratio (transplanted:re-established) after two years. If this performance criterion cannot be met, an in-lieu fee will be paid to the state CNPS program.
- If any additional sensitive plant species are discovered on site that cannot be avoided, the appropriate agencies will be consulted by EBMUD to determine the appropriate species-specific mitigation measures.
- Mitigation for sensitive plant species may include: repairing, rehabilitating or restoring the impacted area; preserving in-situ populations on site; or by providing offsite compensation. Offsite compensation may include the permanent protection of an offsite population through a conservation easement or the purchase of mitigation banking credits at a 1:2 ratio.”

If preconstruction surveys identify native grasses that are sensitive species, impacts to those species would be adequately addressed by Mitigation Measure BIO-1 requirements for species-specific mitigation, including the measure that if any additional sensitive plant species are discovered on site that cannot be avoided, the appropriate agencies will be consulted by EBMUD to determine the appropriate species-specific mitigation measures, which may include: repairing, rehabilitating, or restoring the impacted area; preserving in-situ populations on site; or by providing offsite compensation. Offsite compensation may include the permanent protection of an offsite population through a conservation easement or the purchase of mitigation banking credits at a 1:2 ratio. Because Mitigation Measure BIO-1 requires EBMUD to conduct preconstruction surveys for sensitive plants, to notify appropriate agencies if any sensitive plant species are found, and to coordinate with regulatory agencies to comply with appropriate

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species-specific avoidance and minimization measures, impacts to sensitive plant species would be less than significant.

### Response to Comment Bowen-9A

As explained below in Response to Comment Bowen-9B, the Project's construction impacts have been fully analyzed and would be less than significant. Page 2-12 of the MND states the EBMUD Reservoir Design Guide establishes minimum requirements to be followed in the design of EBMUD drinking water reservoirs. The minimum access road width per the EBMUD Reservoir Design Guide is 12 feet, meaning impervious surface from the roadway would total approximately 9,600 square feet (0.22 acres).<sup>2</sup> In response to this comment, the following language is added to the Proposed Project section, page 2-7, of the MND: "To provide year-round access to the proposed reservoir location, an approximately 12-foot-wide, 800-foot-long, asphalt concrete access road (with a maximum slope of about 15 percent) will be constructed starting at the private Los Norrabos roadway, continuing uphill from the existing Dos Osos Reservoir entrance."

As described above, the proposed access road will create approximately 0.22 acres of impervious surface which is approximately 0.02 percent of the watershed lands parcel. This conversion to impervious surface is less than significant given that the impervious area is a small fraction of the contributing watershed drainage area and that the stormwater runoff from the access road will infiltrate directly adjacent to preconstruction infiltration points. As stated on page 3-72 of the MND, "The new access road would be cross-sloped such that stormwater runoff would infiltrate to native soils immediately adjacent to the access road over watershed lands. Thus, all stormwater runoff from proposed impervious surfaces will be available for groundwater recharge, and any surface runoff will be managed to maintain the status quo commensurate with infiltration (from precipitation), groundwater, and recharge." Because stormwater runoff will be distributed along the entire length of the access road alignment to adjacent vegetated hillslopes, all stormwater runoff from the road will be dispersed to drain and infiltrate to the same watershed sub-basin as under preconstruction conditions, not "elsewhere" as stated in the comment. Stormwater runoff from the Project site before and after Project construction will contribute runoff and groundwater recharge amounts to the same watershed basin. Further, the comment regarding paving the entire SVRA is immaterial to the MND's analysis, given the size of the SVRA compared to the size of proposed impervious surface area.

Regarding the conversion of permeable agricultural grassland, please see the Responses to Comments Bowen-3A through 3C, above.

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<sup>2</sup>The total impervious area of the Project is 0.38 acres, including the footprint of the dual reservoirs site and the entire access road (which would be built both within and outside of existing watershed lands). Of the 0.38-acre total, 0.24 acres include watershed grassland that would be converted to impervious surfaces, including the footprint of the dual reservoirs site and the 300-foot portion of the roadway that will cover existing watershed grassland. The remaining 500 feet of roadway would create 0.14 acres of impervious surface over land that is not currently suitable or accessible for grazing.



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### Response to Comment Bowen-9B

Please see the Responses to Comments Bowen-3A through Bowen-3C above regarding siting of the Project and livestock grazing. Response to Comment Bowen-4A, above, describes the De La Veaga Trail and views of the new dual Dos Osos Reservoirs from the trail. As stated on page 3-95 of the MND, the Project would not significantly increase the use of the SVRA nor does the Project include any recreational facilities. The De La Veaga Trail is located far enough away from the new dual Dos Osos Reservoirs site that the trail would remain open during construction of the dual reservoirs. Construction of the new dual reservoirs would not impede access to the SVRA, as all De La Veaga Trail users must enter the SVRA at the De La Veaga staging area on Camino Pablo.

Further, given the minimal visual impacts of the Project on trail users, as described in Response to Comment Bowen-4A above, the Project would not result in significant recreational impacts.

### Response to Comment Bowen-10A

Contrary to the comment that the MND's Geology and Soils section is "inadequate in its deferred mitigation proposal," the Geology and Soils section discusses potential impacts that were identified in the MND as potentially significant before implementation of mitigation measures, considers several alternative mitigation approaches, requires compliance with regulatory design standards, and requires recommendations meeting those standards to be incorporated into the Project. Thus, the mitigation measures proposed in the MND, and committed to by EBMUD, are not deferred and will lead to mitigation of potentially significant geological impacts to less than significant levels.

As stated on page 3-48 of the MND, "The new dual Dos Osos Reservoirs construction would occupy areas underlain at shallow depth by interbedded siltstone and claystone of the Orinda Formation, which is prone to landslides. . . . A small anomalous, gently rounded bulge was observed approximately 130 feet upslope of the new dual Dos Osos Reservoirs site, and four small landslides were observed during an aerial photo review within a 1,000-foot radius of the dual reservoirs site on the watershed lands. The potential for further landslides to continue in the future would be a potentially significant impact." As such, the MND clearly recognizes the significance of landslides in the Project vicinity and has identified this impact as potentially significant before the implementation of mitigation measures.

The comment discusses "four" landslides that occurred in the Project area that have "occurred this year alone." Only one landslide with the potential to impact the proposed dual Dos Osos Reservoirs site that may have occurred during the winter of 2016-2017 was identified by EBMUD. A field visit conducted on June 22, 2017, by an EBMUD civil engineer found the occurrence of a small, approximately 30-foot x 60-foot, shallow landslide southeast of the proposed site for the new dual Dos Osos Reservoirs, which may have occurred due to the heavy rains in the spring of 2017. Again, as stated on pages 3-47 and 3-48 of the MND, "While there is not an active seismic source located at the new dual Dos Osos Reservoirs site, there are areas of the site that may be composed of loose clayey sand and silty sand that are subject to liquefaction." Mitigation Measure GEO-1 includes the provision that "EBMUD shall conduct a

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detailed geotechnical investigation of the new dual Dos Osos Reservoirs site prior to design to evaluate the potential for liquefaction, subsidence, and lateral spreading; extent of landslide deposits; and develop applicable slope stabilization methods, as necessary.” And, Mitigation Measure GEO-2 will “replace soils . . . with high liquefaction potential within the Project site with compacted fill, as deemed necessary in the geotechnical investigation.” As such, the MND has identified the potential for further landslides (seismically and non-seismically induced) to continue in the future as a potentially significant impact. The MND also explained that implementation of Mitigation Measures GEO-1 through GEO-4 would reduce this impact to less than significant levels. Because Mitigation Measures GEO-1 through GEO-4 will be implemented, and these measures require incorporation of a geotechnical investigation of the dual reservoirs site into construction and design requirements and the implementation of all recommendations from the geotechnical investigation (including potential soil replacement, landslide deposit removal, and slope stabilization techniques), impacts to and from the Project resulting from seismic-related ground failure, including liquefaction, and seismic-induced landslides, and non-seismic-induced landslides, lateral spreading, subsidence, liquefaction or collapse, would be reduced to less than significant levels.

The comment also references a “1955 slide originating from the project area.” It is unclear to which landslide this comment refers; however, the hillslope evaluation performed for the proposed dual reservoirs site (AECOM, 2016) identified a landslide outside of the proposed Project footprint (east of the proposed reservoir site and downslope of the existing fire access road) from the 1950s in historical aerial photos; however, evidence of this landslide was not observed during the field reconnaissance conducted in March 2016 or in June 2017.

The comment also references a landslide in the SVRA that occurred in January 2017 that required the dismantling of an existing PG&E transmission tower and installation of temporary aboveground electrical utility poles. This landslide is approximately 3,200 feet from the Project site and would not impact the proposed Project or be susceptible to impacts from the Project.

### Response to Comment Bowen-10B

Contrary to the comment’s suggestion, the MND includes mitigation measures specifically designed to address the possibility for the Project to cause landslides. For example, Mitigation Measure GEO-3 requires areas of landslide deposits within the grading footprint of the Project to be removed, reducing the potential for landslides to originate from the Project site. In addition, Mitigation Measure GEO-4 requires implementation of the slope stabilization techniques identified by the geotechnical investigation required by Mitigation Measure GEO-1; implementation of slope stabilization techniques such as corrective grading and recompaction with engineered fill and slope reinforcement will reduce the potential for the Project to cause landslides to less than significant levels. Provisions of all the Geology and Soils Mitigation Measures apply to the entire grading footprint of the Project site, including both upslope and downslope of the dual reservoirs and the new access road.

The recommendations from the geotechnical investigation are required to be incorporated into Project design and construction and will ensure that any potential impacts related to landslides, including landslides that could be caused by Project construction, will be less than significant.

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### Response to Comment Bowen-10C

The geotechnical mitigation measures are not undefined. As stated on pages 3-47 through 3-49 of the MND, Mitigation Measures GEO-1 through GEO-4 list potential alternative approaches for replacing soils with high liquefaction potential, removing landslide deposits, and implementing slope stabilization techniques. These mitigation measures describe the types of actions that could occur as a result of the future geotechnical study and require those actions to be designed to comply with applicable standards and to mitigate geologic and seismic hazards.

The comment expresses concern that mitigation measures “for existing slides” could result in significant impacts. The MND already acknowledged this possibility on page 3-49 and concluded that impacts would be less than significant. Clarifying language is added to page 3-49 of the MND: “The example slope stabilization techniques outlined above and required by the GEO Mitigation Measures may have the potential to cause environmental impacts. As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project. For potential slope stabilization impacts related to Aesthetics, Air Quality, Biological Resources, Cultural Resources, Greenhouse Gases, Hazards and Hazardous Materials, Hydrology and Water Quality, Noise and Transportation and Traffic, the relevant mitigation measures and EBMUD standard practices and procedures discussed in the MND ensure that impacts would be less than significant.”

Below is a brief description of why the slope stabilization techniques listed as alternatives in Mitigation Measures GEO-1 through GEO-4 would not cause significant impacts.

#### *Aesthetics*

The slope stabilization techniques, called for in Mitigation Measures GEO-1 through GEO-4 do not require construction of permanent visible features in the landscape. Any graded slopes resulting from the slope stabilization techniques will be revegetated, and any slope stabilization techniques will occur in the Project grading area or directly upslope of the Project site. Also, as detailed in the Project Description and in Section I, Aesthetics, of the MND, the construction of earthen berms and the planting of trees will screen the new dual reservoirs site from short- and long-distance views. For these reasons, the mitigation measures would not cause significant aesthetic impacts.

#### *Air Quality/Greenhouse Gas (GHG) Emissions*

The construction of slope stabilization techniques is short term or temporary in duration, and there are no long-term operational emissions associated with the slope stabilization techniques. As detailed in the Project Description and in Section III, Air Quality, and Section VII, GHG Emissions, of the MND, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 35 44, Environmental Requirements. As described in Sections III and VII, Specification 01 35 44 includes appropriate air quality and GHG emissions management practices (including all Bay Area Air Quality Management District-recommended practices), and dust control practices and monitoring, that will be

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implemented as part of the Project (including any slope stabilization work performed pursuant to Mitigation Measures GEO-1 through GEO-4). For these reasons, the mitigation measures would not cause significant air quality or GHG impacts.

### *Biology*

As with the remainder of the new reservoirs construction component of the Project, the slope stabilization techniques would occur on federal critical habitat for the Alameda whipsnake and, as with other aspects of dual reservoirs construction, the slope stabilization techniques have the potential to impact the Alameda whipsnake and other special-status or rare plant and wildlife species. Mitigation Measures BIO-1 through BIO-5 will ensure that any potential biological impacts to special-status species plants, reptiles, mammals and invertebrates with the potential to occur at the Project sites from slope stabilization techniques implemented pursuant to Mitigation Measures GEO-1 through GEO-4 will be reduced to less than significant levels (as stated in Section IV, Biological Resources, of the MND), and no further mitigation would be required.

### *Cultural Resources*

The slope stabilization techniques would be located on and/or directly adjacent to the new dual reservoirs where there are no recorded occurrences of archaeological resources within the immediate vicinity (half mile), as stated in Section V, Cultural Resources, of the MND. As detailed in the Project Description and Section V of the MND, Section 3.9, Protection of Cultural and Paleontological Resources, of EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, has been incorporated into the Project (including any slope stabilization work performed pursuant to Mitigation Measures GEO-1 through GEO-4) and requires implementation of cultural resources procedures that address the inadvertent discovery of archaeological and paleontological resources and follows statutory law. For these reasons, the impact of the slope stabilization techniques listed as alternatives in Mitigation Measures GEO-1 through GEO-4 related to cultural resources is less than significant.

### *Hazards*

Construction of the slope stabilization techniques does not have the potential to release the specific pollutants described in Section VIII, Hazards and Hazardous Materials, of the MND (e.g., superchlorinated water for pipeline disinfection, lead, and asbestos). As detailed in the Project Description and in Section VIII of the MND, a number of EBMUD standard practices and procedures, including EBMUD's Standard Construction Specification 01 35 44, applicable to all EBMUD projects, have been incorporated into the Project. Though the construction of slope stabilization techniques from Mitigation Measures GEO-1 through GEO-4 do not result in the release of specific hazardous materials, incorporation of several EBMUD Standard Construction Specifications, including the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP) and a Spill Prevention and Response Plan, and appropriate training of personnel for hazards, ensures that potential

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impacts from accidental release of hazardous materials during construction will be less than significant.

Wildland fire is a potential risk at the existing Dos Osos Reservoir site due to the location of this site where wildlands are adjacent to urbanized areas and where residences are intermixed with wildlands. Similar to other Project components, the construction of slope stabilization techniques proposed under Mitigation Measures GEO-1 through GEO-4 could pose a wildland fire risk in the Project area, particularly during the clearing phase, when construction workers and equipment would be near vegetative fuels that could be highly flammable. As detailed in the Project Description and in Section VIII of the MND, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 35 24, Project Safety Requirements. Because Section 1.6, Fire Prevention and Protection, of EBMUD's Standard Construction Specification 01 35 24, Project Safety Requirements, has been incorporated into the Project and mandates that the site will be supplied and maintained with adequate firefighting equipment capable of extinguishing incipient fires and complies with applicable fire code regulations that include provisions for wildfire protection building construction, hazardous vegetation and fuel management, defensible space, fire reporting, access for firefighting, and portable fire extinguishers, the impact of the slope stabilization techniques listed as alternatives in Mitigation Measures GEO-1 through GEO-4 related to hazards resulting from wildland fires is less than significant.

### *Hydrology and Water Quality*

Construction of the slope stabilization techniques called out in Mitigation Measures GEO-1 through GEO-4 will not substantially alter the existing drainage pattern of the site area, and stormwater runoff from the slope stabilization areas would continue to infiltrate below ground at the stabilization areas themselves or would be discharged via controlled dispersal directly to adjacent vegetated hillslopes and/or an energy dissipater outfall structure on watershed lands. Also, the slope stabilization techniques would not result in the creation of new impervious surface area and, thus, would not provide substantial additional sources of polluted runoff. For these reasons, there would be no substantial long-term alteration of the existing drainage pattern of the site area from slope stabilization activities that would a) result in substantial erosion or siltation on site or off site or b) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on site or off site.

As with other dual reservoir construction activities, during construction of the slope stabilization techniques listed as alternatives in Mitigation Measures GEO-1 through GEO-4, short-term creation or contribution of runoff water could occur which could provide substantial additional sources of polluted runoff. As described in the Project Description and in Section IX, Hydrology and Water Quality, of the MND, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project. Because practices and procedures that prevent the discharge of contaminated stormwater runoff from the Project site and prevent the accidental release of hazardous materials during Project construction have been incorporated into the Project (including any

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slope stabilization work performed pursuant to Mitigation Measures GEO-1 through GEO-4), the impact of the slope stabilization techniques listed as alternatives in Mitigation Measures GEO-1 through GEO-4 related to potential short-term hydrological and water quality impacts is less than significant.

### *Noise*

The construction of slope stabilization techniques listed as alternatives in Mitigation Measures GEO-1 through GEO-4 would require similar construction techniques and equipment as that described for the dual reservoir construction, would be located on or directly adjacent to the dual reservoir site, and would be performed in accordance with the work hours described in the Project Description and in Section XII, Noise, of the MND. Because Section 1.4, Work Hours, and Section 1.8, Construction Noise, of EBMUD's Standard Construction Specification 01 14 00, Work Restrictions, have been incorporated into the Project (including Mitigation Measures GEO-1 through GEO-4), which would limit construction activity work hours, the impact of the slope stabilization techniques listed as alternatives in Mitigation Measures GEO-1 through GEO-4 related to exceeding local noise standards would be less than significant.

Also, because the construction of the slope stabilization techniques does not require construction equipment different than that required for key construction activities for the new dual reservoir site, and because Section 3.6, Noise Control, of EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, has been incorporated into the Project (including any slope stabilization work performed pursuant to Mitigation Measures GEO-1 through GEO-4), impacts from exposure to or generation of excessive ground-borne vibration or ground-borne noise levels and impacts from substantial temporary or periodic increases in ambient noise levels in the Project vicinity above existing noise levels existing without the Project would be similar to those described in Section XII of the MND and would be less than significant.

### *Traffic*

As detailed in the Project Description and in Section XVI, Transportation/Traffic, of the MND, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project (including any slope stabilization work performed pursuant to Mitigation Measures GEO-1 through GEO-4), including Standard Construction Specification 01 14 00, Work Restrictions, and Standard Construction Specification 01 55 26, Traffic Regulation. These specifications include provisions to limit construction traffic to non-peak commute hours and to prepare and implement a Traffic Control Plan that minimizes impacts to traffic circulation. As with construction of other Project components, compliance with these specifications would ensure that implementation of Mitigation Measures GEO-1 through GEO-4 would not cause significant transportation/traffic impacts.

Because the slope stabilization techniques listed as alternatives in Mitigation Measures GEO-1 through GEO-4 will occur within the Project area and the proposed retaining wall will serve as a

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slope stabilization measure itself, the effects of the slope stabilization techniques described in Mitigation Measures GEO-1 through GEO-4 would not exceed Project impacts. In summary, the above text describes how the mitigation measures and EBMUD practices and procedures previously described in the MND would reduce any potential impacts from slope stabilization techniques called for in Mitigation Measures GEO-1 through GEO-4 to less than significant levels.

### 3. DOCUMENT REVISIONS

#### *3.1. Introduction*

This chapter presents revisions that have been made to the MND text. These revisions provide additions and clarifications. The text revisions are organized by resource topics, for which revisions were requested. Single underlined text represents language that has been added to the MND.

#### *3.2. MND Revisions*

##### *3.2.1. Project Objective*

The following language is added to page 1-3 of the MND:

The Project objectives include:

- Rehabilitate and replace critical aging water distribution facilities; and
- Improve level of service in the pressure zone by raising the elevation of the proposed new dual Dos Osos Reservoirs to minimize low-pressure areas; and
- Increase operational flexibility in the pressure zone by replacing the existing Dos Osos Reservoir with new dual Dos Osos Reservoirs.

##### *3.2.2. Proposed Project*

The following language is added as a footnote to page 2-6 of the MND:

Operational flexibility is derived from the construction of two tanks. One tank can be removed from service during low-demand periods while the other remains in service. For example, during the winter season when there is less demand for potable water, only one tank could be used, which results in less water being stored overall as water is circulated through the tank and water distribution system. Reducing water storage to meet demand improves water quality by decreasing water age (decreasing the time water is in the tank). Similarly, one tank can be removed from service for maintenance (cleaning and/or repairs) while the other tank remains in service. During periods of high demand, both tanks can be used to meet customer demand.

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The following language is added to the second paragraph of page 2-7 of the MND:

Raising the reservoir by approximately 70 feet would increase pressure up to 30 pounds per square inch (psi) throughout the Dos Osos Pressure Zone. Under high summertime water demands, existing low-pressure areas of the Dos Osos Pressure Zone experience pressures as low as approximately 5 to 15 psi. These low pressures are inconsistent with accepted standards for water service. For example, EBMUD strives to maintain standard water service at approximately 40 psi. Maintaining adequate water pressure throughout a pressure zone is required to meet consumer demands.

Based on existing customer elevations within the Dos Osos Pressure Zone, approximately 20 existing water services would require new house pressure regulators to be installed by EBMUD due to water pressure increases. A house pressure regulator would be installed on each property owner's water line and would be typically installed near the hose bib at the entry point to the house or building to reduce the water pressure to the indoor plumbing and outdoor irrigation systems, in accordance with the Uniform Plumbing Code. It is routine for EBMUD to provide house pressure regulators as part of facility and pipeline improvements and pressure zone changes. The new pressure regulators will be installed by an EBMUD-provided plumbing contractor, in accordance with the Uniform Plumbing Code.

The following language is added to the first sentence of the fourth paragraph of page 2-7 of the MND:

To provide year-round access to the proposed reservoir location, an approximately 12-foot-wide, 800-foot-long, asphalt concrete access road (with a maximum slope of about 15 percent) will be constructed starting at the private Los Norrabos roadway, continuing uphill from the existing Dos Osos Reservoir entrance.

The following language is added after the first sentence of the fifth paragraph of page 2-7 of the MND:

An estimated 800 feet of 12-inch pipeline will connect the dual reservoirs to the existing pipeline in Los Norrabos within the new access road alignment. A right-of-way (approximately 40 feet in length) for the pipeline and access road will be necessary to connect from EBMUD watershed lands to Los Norrabos.

### 3.2.3. Project Schedule and Cost

The following language is added to the second sentence of the paragraph of page 2-16 of the MND:

Reservoir and pumping plant design and obtaining a right-of-way for the pipeline and access road will take about one year, followed by solicitation of bids from contractors.



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### 3.2.4. *Aesthetics*

The following language is added to the last full paragraph of page 3-7 of the MND:

The De La Veaga Trail is a 2.9-mile EBMUD trail in the Siesta Valley Recreation Area (SVRA) that extends roughly southeast to northwest across the SVRA. Trail users must have an EBMUD Trail Use Permit and must gain access to the trail from the De La Veaga staging area off of Camino Pablo. For much of its length, the new dual tanks will not be visible from the De La Veaga Trail, because the new dual tanks will be located just over elevated ridge lines from the trail alignment. However, at its nearest point, the De La Veaga Trail is approximately 500 feet southeast of the new dual tanks site, and the tops of the new dual tanks will be visible approaching this point from a portion of the De La Veaga Trail in either direction.

The following language is added to the end of the first paragraph of subsection c. on page 3-7 of the MND:

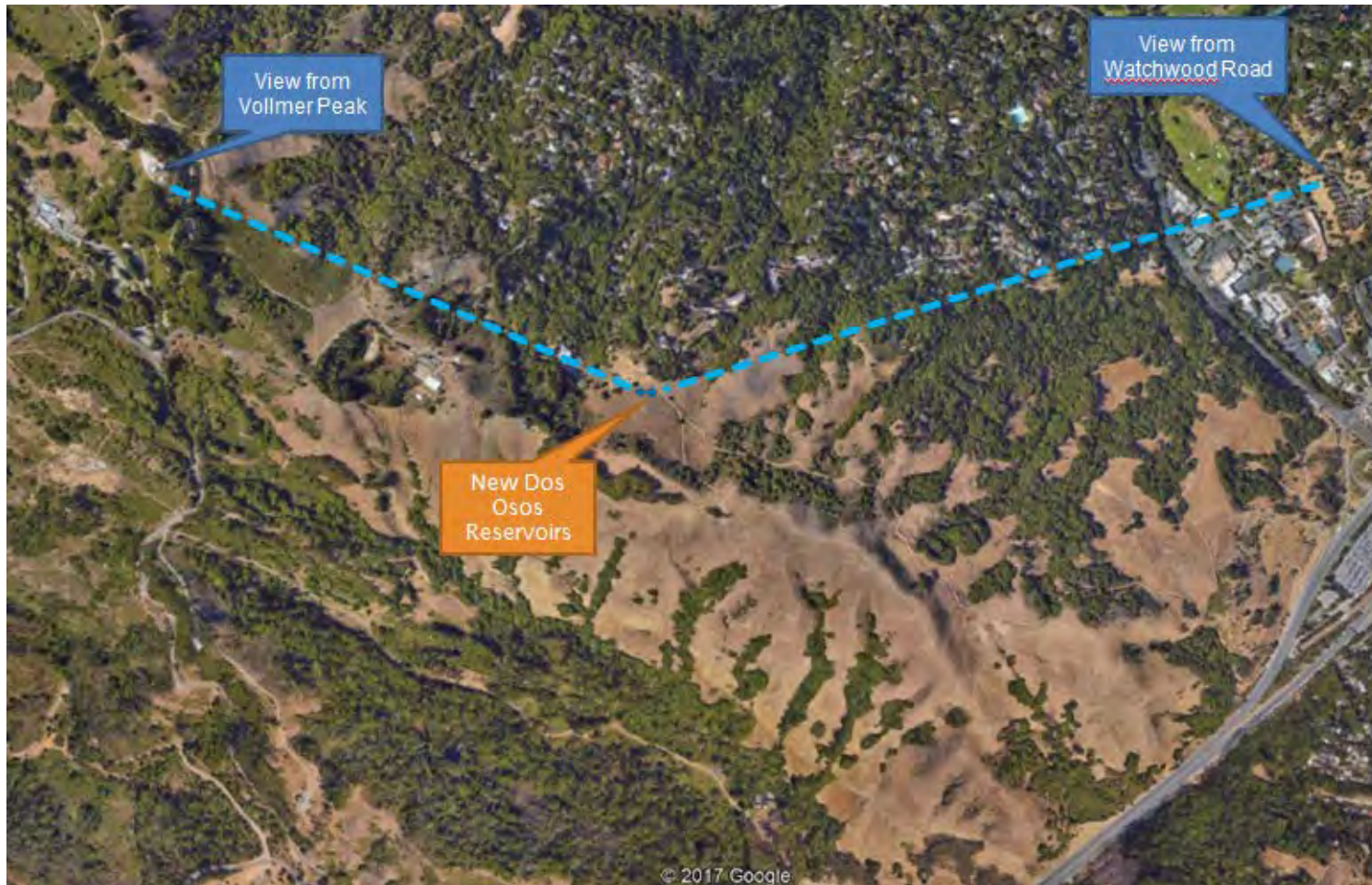
Please see Figures 3.1 through 3.8 for simulated views of the Project from primary vantage points.

The following figures are added to Section I, Aesthetics, of the MND:

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**Figure 3.1 Locations of viewpoints of the new dual Dos Osos Reservoirs from the De La Veaga Trail, the horse corral and Lomas Cantadas.**



**Figure 3.2 Locations of viewpoints of the new dual Dos Osos Reservoirs from Watchwood Road and Vollmer Peak.**



**Figure 3.3 Simulated view from De La Veaga Trail. This visual simulation shows the view of the new Dos Osos Reservoirs from the closest point of the De La Veaga Trail, approximately 500 feet away from the reservoirs. The public trail continues to the left; the private fire access road is on the right.**



**Figure 3.4 Simulated view from De La Veaga Trail pedestrian gate. This visual simulation shows the view of the new Dos Osos Reservoirs from the De La Veaga Trail pedestrian gate, approximately 1,000 feet away from the reservoirs.**



Figure 3.5a Existing view from horse corral. This photo shows the existing view of the new Dos Osos Reservoirs site from a horse corral approximately 150 feet away from the site.



**Figure 3.5b Simulated view from horse corral. This photo simulation of the new Dos Osos Reservoirs site shows the new dual reservoirs, retaining wall, security fencing, constructed earthen berms, and planted trees. The viewpoint is from a horse corral approximately 150 feet away from the site.**



**Figure 3.6 Simulated view from Lomas Cantadas. This visual simulation shows the view of the new Dos Osos Reservoirs from Lomas Cantadas, approximately 1,500 feet away from the reservoirs.**





**Figure 3.7 Simulated view from Watchwood Road, Orinda. This visual simulation shows the view of the new Dos Osos Reservoirs from Watchwood Road, greater than one mile away from the reservoirs above downtown Orinda.**



**Figure 3.8 Simulated view from Vollmer Peak. This visual simulation shows the view of the new Dos Osos Reservoirs from Vollmer Peak, approximately 4,000 feet away from the reservoirs.**

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### 3.2.5. *Agriculture and Forestry Resources*

The following language is added to the discussion under impact a) on page 3-9 of the MND:

Open space and watershed management use in EBMUD’s Siesta Valley watershed land includes dry season livestock grazing, which takes place on nine separate pastures within the approximately 1,000-acre watershed land parcel. Objectives of EBMUD’s livestock grazing program include managing vegetation (e.g., for fire hazard reductions); “eliminate or restrict grazing in areas where substantial impacts on water quality, biodiversity, fire control, or other management objectives may occur.” (EBMUD Low Effect Habitat Conservation Plan, 2008.) The only livestock grazing activity currently allowed within the Siesta Valley grazing allotment is dry season livestock grazing. In accordance with EBMUD’s livestock grazing program objectives, the dry season livestock grazing rotations vary from year to year depending on weather patterns, noxious weed populations, and fire fuel density. EBMUD’s livestock grazing program objectives would continue to be met following the construction of the new dual reservoirs.

### 3.2.6. *Geology and Soils*

The following language is added to the second paragraph of page 3-49 of the MND:

The example slope stabilization techniques outlined above and required by the GEO Mitigation Measures may have the potential to cause environmental impacts. As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project. For potential slope stabilization impacts related to Aesthetics, Air Quality, Biological Resources, Cultural Resources, Greenhouse Gases, Hazards and Hazardous Materials, Hydrology and Water Quality, Noise and Transportation and Traffic, the relevant mitigation measures and EBMUD standard practices and procedures discussed in the MND ensure that impacts would be less than significant.

**APPENDIX D**

**BIOLOGICAL RESOURCES EVALUATION FOR THE DOS OSOS RESERVOIR  
REPLACEMENT PROJECT, ORINDA, CALIFORNIA (EBMUD 2016)**

Biological Resources Evaluation for the  
Dos Osos Reservoir Replacement Project  
Orinda, California



July 20, 2016

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## 1.0 INTRODUCTION

East Bay Municipal Utility District (EBMUD) biologists conducted a biological resources evaluation for the EBMUD's Dos Osos Reservoir Replacement Project (Project) in the City of Orinda (Contra Costa County), California. This report describes the findings of site assessments, which evaluated the Project for (1) the potential to support special status species or their habitats; and (2) presence of other sensitive biological resources protected by local, state, and federal laws and regulations. This report also describes potential impacts to special status species and sensitive biological resources that may occur as a result of the Project and lists potential measures that may compensate for those impacts. This biological resources evaluation provides general information on the potential presence of sensitive species and habitats, for the purpose of guiding the CEQA process. Protocol level surveys for listed species may be required for Project approval by local, state, or federal agencies. Limited surveys were conducted as part of this evaluation, primarily to detect the presence of rare plants. This evaluation is based on information available at the time of the assessment and on site conditions that were observed on the dates of the site visits.

### 1.1 Project Setting

The Project is located east of Eureka Peak in the City of Orinda, Contra Costa County (Figure 1). The existing Dos Osos Reservoir is on the margins of a residential community and is bordered by homes to the north and EBMUD-owned watershed lands to the south. The existing reservoir, constructed in 1955, consists of a 0.24 million gallon (MG) steel welded tank on a 0.2 acre paved foot print with access off a private gravel road at 8 Los Norrabos in the El Toyonal neighborhood (Figure 1). The new dual Dos Osos Reservoirs site is located within EBMUD watershed lands approximately 300 feet southwest of the existing reservoir. The new dual reservoirs site is in hilly grazed annual grassland currently accessible by an unpaved fire trail. The existing reservoir is located at the margin of the annual grassland and coast live oak woodland. The Dos Osos Pumping Plant is located in a residential neighborhood 1,100 feet to the north of the existing reservoir at 263 El Toyonal. The pumping plant is bordered by homes and coast live oak woodlands. The existing Dos Osos Reservoir site, the new dual reservoir site and the pumping plant site are collectively referred to as the Project site throughout this document.

### 1.2 Proposed Project Description

EBMUD's Water Distribution Planning Division (WDPD) conducted a regional study of water infrastructure to evaluate the need to rehabilitate and/or replace aging infrastructure, improve water quality operations efficiency, and improve domestic and emergency water service reliability. The study recommended the replacement of the 0.24 MG Dos Osos Reservoir, which is over 60 years old and near the end of its useful life (EBMUD 2015). Currently, the steel welded tank shell requires recoating due to its age and condition. The corrugated metal roofing, roof frame and stairs leading to the roof all require replacement. The Dos Osos Reservoir is approximately 8 times larger than needed to provide water to the 82 homes it supplies. Excess storage and low demands within the pressure zone have led to water quality operational challenges in winter months due to poor water turnover and low chlorine residual.

To address these deficiencies, the existing reservoir will be replaced with dual 0.12-MG steel bolted tanks at a 70-foot higher elevation on adjacent EBMUD-owned watershed property (Figure 2). The new dual tanks will be located near the northern perimeter of the EBMUD watershed parcel approximately 300 feet southwest of the existing reservoir. The dual steel-bolted reservoirs will be approximately 21 feet high with approximate diameters of 33 feet. The tanks will be spaced approximately 15 feet apart. Each reservoir will be equipped with a 12'x12' valve pit, sample and chemical station, cathodic protection panel, Remote Telemetry Unit (RTU) panel with associated 10-ft antennas on each roof, stairway, and fall protection. The reservoirs will have aluminum dome roofs and will be painted green. The foot print of the new reservoir tank site will be approximately 0.2 acres.

To provide year-round access to the proposed reservoir location, an approximately 800-foot long, asphalt concrete access road (maximum slope 15%) will be constructed starting at the private Los Norrabos roadway, continuing uphill from the existing Dos Osos Reservoir entrance (Figure 2.). At approximately 100 feet upslope of the existing reservoir entrance, the proposed access road will turn south just past the Dos Osos Reservoir parcel line to enter EBMUD watershed lands. Once inside watershed lands, the access road will continue southerly upslope before switching back to meet the existing EBMUD fire road where it will follow the fire road for approximately 260 feet before reaching the proposed reservoir site. Roughly 5 trees will need to be removed for the construction of the proposed access road. The foot print of the paved access road will be approximately 0.2 acres.

Approximately 800 feet of 12-inch steel pipeline will connect the dual reservoirs to the existing inlet-outlet line in Los Norrabos. The pipeline will follow the proposed access road alignment. An 8-inch steel overflow line will also be installed under the road. The overflow line will run from the dual reservoirs along the access road alignment for approximately 700 feet before turning northeast for 50 feet to connect to the existing Dos Osos Reservoir 8-inch cast-iron overflow line. The proposed overflow line will connect to the existing Dos Osos Reservoir overflow line at approximately 250 feet above the existing rock rip-rap outfall (Figure 2).

Two earthen berms will be constructed to screen the dual reservoirs from the northeastern and northwestern vantage points. The two proposed earthen berms will be a) north of the proposed dual reservoirs site, parallel to the parcel perimeter, to screen views from properties to the north; and b) northeast of the proposed dual-reservoirs site, between the new dual reservoirs and the existing fire access road, parallel to the fire access road, to screen long-distance views from residences on Los Norrabos and viewpoints east of Camino Pablo in the City of Orinda. The berms and the area upslope of the retaining wall will be planted with native trees for screening.

The existing 0.24-MG Dos Osos Reservoir, located at 8 Los Norrabos, will be demolished upon completion of construction and successful testing of the new dual Dos Osos Reservoirs and Dos Osos Pumping Plant. All steel, roofing, stairs, concrete vaults, concrete foundations, electrical, and mechanical equipment will be removed from the site. Upon completion of all demolition work, the valve pit will be backfilled, and the site will be graded and compacted.

The Dos Osos Pumping Plant, located at 263 El Toyonal, will be upgraded with pump units that can accommodate a higher total dynamic head that will result from the increased elevation of the new tanks. The existing backup six-inch pressure-regulating valve inside the Dos Osos Pumping Plant structure will be opened and put into service. This pressure-regulating valve or regulator (known as the Westside Regulator) will be a dedicated emergency valve to provide fire flow to the lower Westside Pressure Zone from the new dual Dos Osos Reservoirs. A portable pump will be installed at the Dos Osos Pumping Plant site during the upgrade of the pump units to prevent disruptions in water service. Due to difficult access for fuel trucks and the proximity to a quiet residential community, an electric portable pump will be used at this site. Upgrades to the Dos Osos Pumping Plant will occur within the existing structure and no changes will be made to the exterior foot print. An existing 0.75-inch air valve will be upgraded with an above-grade, 0.75-inch, slow-venting air valve at the intersection of Alta Vista and Lomas Contadas. The valve will be replaced by hand and no ground disturbance will occur.

Excavation and grading will occur to create a pad for the new tanks and for the construction of the new roadbed. Heavy equipment anticipated to be used during construction include: backhoes, excavators, hoe rams, jack hammers, bulldozers, front-end loaders, fork lifts, flatbed delivery trucks, asphalt pavers, vibratory compactors, rollers, street sweeper, water trucks, shotcrete and concrete trucks, high lift crane, various passenger vehicles, electric portable pumps, and truck-mounted equipment for soil nail installation and welding of pipelines. The construction foot print for the project will be approximately 0.5 acres. Construction is anticipated to begin 2023. The Project will take approximately 1.5 years to complete.

## 2.0 REGULATORY BACKGROUND

The following sections explain the regulatory context of the biological evaluation, including applicable laws and regulations that were applied to the field investigations and analysis of potential Project impacts.

### *2.1 Special Status Biological Communities*

Special status biological communities include communities and habitats that fulfill special functions or have special values, such as wetlands, streams, and riparian habitat, and sensitive natural plant communities. These communities and habitats are protected under federal regulations such as the Clean Water Act, state regulations such as the Porter-Cologne Act, the California Department of Fish and Wildlife (CDFW) Streambed Alteration Program, the California Environmental Quality Act (CEQA), or local ordinances or policies (e.g. City or County Tree Ordinances or General Plan Elements). Non-sensitive biological communities are not afforded special protection under CEQA, and other state, federal, and local laws, regulations

and ordinances. However, these communities may provide suitable habitat for some special status plant or wildlife species.

#### Waters of the United States

The U.S. Army Corps of Engineers (Corps) regulates “Waters of the United States” under Section 404 of the Clean Water Act (CWA). “Waters of the U.S.” are defined broadly as waters susceptible to use in commerce, including interstate waters and wetlands, all other waters (intrastate waterbodies, including wetlands), and their tributaries (33 CFR 328.3). Potential wetland areas, according to the three criteria used to delineate wetlands stated in the Corps Wetlands Delineation Manual (Environmental Laboratory 1987), are identified by the presence of (1) hydrophytic vegetation, (2) hydric soils, and (3) wetland hydrology. Areas that are inundated for sufficient duration and depth to exclude growth of hydrophytic vegetation are subject to Section 404 jurisdiction as “other waters” and are often characterized by an ordinary high water mark. Other waters, for example, generally include lakes, rivers, and streams. The placement of fill material into “Waters of the U.S.” generally requires an individual permit, nationwide permit or letter of permission from the Corps under Section 404 of the CWA.

#### Waters of the State

The term “Waters of the State” is defined by the Porter-Cologne Act as “any surface water or groundwater, including saline waters, within the boundaries of the state.” The California State Regional Water Quality Control Board (RWQCB) protects all waters in its regulatory scope, but has special responsibility for wetlands, riparian areas, and headwaters. These waterbodies have high resource value, are vulnerable to filling, and are not systematically protected by other programs. RWQCB jurisdiction includes “isolated” wetlands and waters that may not be regulated by the Corps under Section 404. “Waters of the State” are regulated by the RWQCB under the State Water Quality Certification Program which regulates discharges of fill and dredged material under Section 401 of the CWA and the Porter-Cologne Water Quality Control Act. Projects that require a Corps permit, or fall under other federal jurisdiction, and have the potential to impact “Waters of the State,” are required to comply with the terms of the Water Quality Certification determination. If a project does not require a federal permit, but does involve dredge or fill activities that may result in a discharge to “Waters of the State,” the RWQCB has the option to regulate the dredge and fill activities under its state authority in the form of Waste Discharge Requirements.

#### Streams, Lakes, and Riparian Habitat

Streams and lakes, as habitat for fish and wildlife species, are subject to jurisdiction by CDFW under Sections 1600-1616 of the State Fish and Game Code. Alterations to or work within or adjacent to streambeds or lakes generally require a 1602 Lake and Streambed Alteration Agreement. The term stream, which includes creeks and rivers, is defined in the California Code of Regulations as follows: “a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation” (14 CCR 1.72). In addition, the term stream can include ephemeral streams, dry washes, watercourses with subsurface flows, canals, aqueducts, irrigation ditches,

and other means of water conveyance if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife (CDFG ESD 1994). Riparian is defined as, “on or pertaining to, the banks of a stream.” Therefore, riparian vegetation is defined as, “vegetation which occurs in and/or adjacent to a stream and is dependent on, and occurs because of, the stream itself” (CDFG ESD 1994). Removal of riparian vegetation also requires a Section 1602 Lake and Streambed Alteration Agreement from CDFW.

### *Sensitive Natural Communities*

Other sensitive biological communities not discussed above include habitats that fulfill special functions or have special values. Natural communities considered sensitive are those identified in local or regional plans, policies, regulations, or by the CDFW. CDFW ranks sensitive communities as “threatened” or “very threatened” and keeps records of their occurrences in its California Natural Diversity Database (CNDDDB). Sensitive plant communities are also identified by CDFW on their List of California Natural Communities Recognized by the CNDDDB. Impacts to sensitive natural communities identified in local or regional plans, policies, and regulations or by the CDFW or the U.S. Fish and Wildlife Service (USFWS) must be considered and evaluated under CEQA (California Code of Regulations: Title 14, Div. 6, Chap. 3, Appendix G).

### *Wildlife Movement Corridors*

Impacts that substantially interfere with the movement of any native fish or wildlife species must be considered under CEQA. Wildlife movement corridors are considered sensitive by resource and conservation agencies. In general, any activities in or adjacent to defined wildlife movement corridors that could potentially disturb, restrict movement or activity, disrupt natal areas, or facilitate increased predation of wildlife species may be considered a significant adverse impact.

Wildlife movement corridors are defined as areas that connect suitable wildlife habitat areas in a region otherwise fragmented by rugged terrain, changes in vegetation, or human disturbance. Natural features such as canyon drainages, riparian areas and ridgelines facilitate wildlife movement. Areas that are contiguous with adjacent open space may also provide corridors for wildlife travel. Wildlife movement corridors act as habitat linkages that allow access to mates, food, and water. Corridors also allow the dispersal of individuals away from high population density areas and facilitate gene flow between populations (Beier and Loe 1992). Impacts to wildlife movement corridors can perpetuate habitat fragmentation by disrupting habitat linkages, which increase a local population’s vulnerability to extirpation.

## *2.2 Special Status Species*

Special status species include those plants and wildlife species that have been formally listed, as endangered or threatened, or are candidates for such listing under the federal Endangered Species Act (ESA) or California Endangered Species Act (CESA). Plants and animals considered “fully protected” or “species of special concern” by CDFW are also considered special status species. Birds, roosting bats and rare or unusual plants are also afforded special consideration.

### Federal Endangered Species Act

The USFWS and the National Marine Fisheries Service (NMFS) oversee implementation of the ESA. The USFWS has jurisdiction over plants, wildlife, and most freshwater fish. The NMFS has jurisdiction over anadromous fish, marine fish and mammals. Per the ESA it is illegal to take Endangered or Threatened species. “Take” means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect species. Take of listed species can be authorized through either the Section 7 consultation process for actions undertaken by federal agencies, or through the Section 10 permit process for actions undertaken by non-federal agencies where a Section 404 permit or other federal approval is not required.

Section 7 of the Act mandates that all federal agencies consult with the USFWS and NMFS to ensure that federal agencies’ actions do not jeopardize the continued existence of a listed species or destroy or adversely modify critical habitat for listed species. Critical habitat refers to areas occupied by a listed species or locations essential to the conservation of a listed species that may require special management considerations. The ESA prohibits the take of any fish or wildlife species listed as threatened or endangered, including the destruction of habitat that could hinder species recovery. Section 7 consultation with USFWS or NMFS is required for projects that have a “federal nexus” if the project may affect a listed species or their habitat.

Section 10 of the ESA requires the issuance of an “incidental take” permit before any public or private action may be conducted that would potentially take an Endangered or Threatened species. The permit requires preparation and implementation of a habitat conservation plan that would offset the take of individuals that may occur, incidental to implementation of the project, by providing for the overall preservation of the affected species through specific habitat management and mitigation measures.

### California Endangered Species Act

The CESA states that all native species of fishes, amphibians, reptiles, birds, mammals, invertebrates, and plants, and their habitats, threatened with extinction and those experiencing a significant decline which, if not halted, would lead to a threatened or endangered designation, will be protected or preserved. Private developers whose projects do not involve a state lead agency under CEQA may not take a listed species without formally consulting with the CDFW and agreeing to measures that will limit impacts to the listed species. CDFW also encourages informal consultation on any project that may affect a candidate species. Incidental take may be permitted for CESA listed species under section 2081 of the Fish and Game Code. Appropriate mitigation to offset impacts to listed species is required to obtain CESA incidental take permits. Section 2080.1 allows an applicant who has obtained a federal incidental take statement pursuant to an ESA Section 7 consultation, or a federal Section 10(a)(1)(B) incidental take permit, to request a consistency determination from CDFW that authorizes take under the CESA.

### California Environmental Quality Act

CEQA Guidelines (Section 15065(a)) indicate that impacts to state and federally listed rare, threatened, or endangered plants or animals are significant. Impacts to species that meet certain criteria but are not officially listed may also be considered significant. This includes

ranks 1A, 1B, and 2 of the CNPS Inventory of Rare and Endangered Vascular Plants of California, which qualify for listing by CDFW. CEQA Guidelines Section 15380(b) provides that a species not listed on the federal or state list of protected species may be considered rare or endangered if the species can be shown to meet certain specified criteria, as in the case of ESA and CESA “candidate species”. CDFW Species of Special Concern, USFWS Birds of Conservation Concern and sensitive species included in USFWS Recovery Plans may also receive consideration under CEQA. Agencies must specifically address potential impacts to sensitive species and provide mitigation measures if the impact is significant.

#### *Migratory Bird Treaty Act*

Most birds in the United States, including non-status species, are protected by the Migratory Bird Treaty Act of 1918. Under this legislation, destroying active nests, eggs, and young is illegal. Additional protection is given under the federal Bald Eagle Protection Act (e.g., bald eagle, golden eagle), under CEQA Section 15380(d) and under California Fish and Game Code Section 3503.

### *2.3 Conservation Plans*

Under CEQA, the lead agency must determine if a project will conflict with the provisions of an adopted Habitat Conservation Plan (HCP), Natural Community Conservation Plan (NCCP) or other approved local, regional, or state habitat conservation plan.

An HCP is a binding long-term agreement between the applicant and the USFWS to avoid, minimize, and mitigate for potential impacts to federally-listed threatened and endangered species. Once an HCP is adopted, an incidental take permit is issued, which authorizes lawful activities to take place in the presence of listed species. No Surprises assurances are provided by the government to non-Federal landowners that if “unforeseen circumstances” arise, the Services will not require additional commitments or restrictions beyond the level agreed to in the HCP.

An NCCP identifies and provides for the regional protection of plants, animals, and their habitats, while allowing compatible and appropriate economic activity. The NCCP process enables agencies, local jurisdictions, and other interested parties to work cooperatively with CDFW to protect ecosystems at the landscape scale to conserve multiple species. NCCP partners set aside habitat areas with high conservation values, which may not be developed, and execute management and monitoring plans for these protected areas. In exchange, the program fosters economic growth by allowing approved development in areas of lower conservation value.

### *2.4 Local Policies and Ordinances*

The City of Orinda General Plan was adopted in 1987. Conservation goals within the plan include: maintaining wildlife by preserving habitats and minimizing impacts to creeks and reservoirs. Applicable guiding policies listed within the plan include: 1) preservation of rare and endangered species; 2) preservation of valuable wildlife habitats and connecting open space to retain wildlife corridors; 3) preservation of oak woodlands and heritage trees; 4) protection of

creeks and riparian areas from pollution, erosion and siltation; and 5) support the preservation of EBMUD watershed lands and retain existing recreational open space (City of Orinda 1987).

The Contra Costa County Ordinance Code has provisions for the protection of a wide range of native tree species including heritage trees (CCC 2015). The code protects trees in areas: designated as visually significant ridge line vegetation; adjacent to or part of a riparian, foothill woodland, oak savanna area; and within open space or recreational areas (CCC 2015).

Conflicts with any local policies or ordinances protecting biological resources are evaluated as part of the CEQA process. Pursuant to California Government Code Section 53091, EBMUD, as a local agency and utility district serving a broad regional area, is not subject to building and land use zoning ordinances (such as tree ordinances) for projects involving facilities for the production, generation, storage, or transmission of water. However, it is the practice of EBMUD to work with host jurisdictions and neighboring communities during project planning and to conform to local environmental protection policies to the extent possible.

### 3.0 METHODS

On June 9, June 29, and September 2, 2015, the Project site was traversed on foot to determine (1) plant communities present, (2) if existing conditions provide suitable habitat for any special status plant or wildlife species, and (3) if sensitive habitats are present. Three botanical surveys were conducted by a qualified botanist to determine presence/absence of rare plant species within the Project site. Surveys were coordinated with the bloom times of potentially occurring rare plant species and were conducted on June 29, 2015, March 3, 2016 and May 27, 2016. A habitat assessment was conducted by a qualified entomologist on January 21, 2016 to determine the suitability of the Project site to support the Bridge's coast range shoulderband snail (*Helminthoglypta nickliniana bridgesii*).

#### 3.1 Biological Communities

Prior to the site visits, the climate, aspect and soils at the Project site were examined to determine if local conditions could support sensitive biological communities. The Biological communities present in the Project site were classified based on existing plant community descriptions described in *A Guide to Wildlife Habitats of California* (Mayer and Laudenslayer 1988). When possible, these descriptions were supplemented with information provided in the California Wildlife Habitat Relationship System (2015). Variants of community types or non-vegetated areas are also specified. A description of the biological setting is provided in Section 4. Sensitive Biological communities identified in the literature review or observed onsite are described in Section 4. The presence or absence of sensitive plant communities and rare plant species was evaluated during botanical surveys.

The Project site was surveyed to determine if any wetlands, waters or riparian areas potentially subject to jurisdiction by the Corps, RWQCB, or CDFW were present. The assessment was based primarily on the presence of wetland plant indicator species and any observed indicators of wetland hydrology or wetland soils. The preliminary waters assessment was based primarily



on the presence of ponded areas or flowing water, or evidence indicating their presence such as a high water mark or a defined drainage course. The National Wetlands Inventory (USFWS NWI 2015) was also queried to identify nearby wetlands or waters that may be affected by the Project.

### *3.2 Special Status Species*

The potential for special status species to occur in the Project site was evaluated by first determining which special status species occur in the vicinity of the Project site through a literature and database search. Special status species included those listed as endangered, threatened, rare or proposed for listing by USFWS or CDFW. California Native Plant Society lists (1B and List 2) and locally rare plant lists were also reviewed. Database searches for known occurrences of special status species focused on a 5 mile area around the Project site. The following sources were reviewed to determine which special status plant and wildlife species have been documented to occur in the vicinity of the Project site:

- California Natural Diversity Database records (CNDDDB 2015)
- Special Vascular Plants, Bryophytes, and Lichens List (CDFW 2015)
- Special Animals List (CDFW 2015)
- USFWS Official Species List (USFWS 2015)
- CNPS Electronic Inventory records (CNPS 2015)
- CNPS list of Rare, Unusual and Significant Plants of Alameda and Contra Costa Counties (Lake 2010)
- EBMUD Managed Species Database (EBMUD FWD 2015)

The Project site was surveyed to search for suitable habitats for species identified in the literature review as occurring in the vicinity. The potential for each special status species to occur in the Project site was then evaluated according to the following criteria:

- 1) **No Potential.** Habitat on and adjacent to the Project site is clearly unsuitable for the species requirements (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).
- 2) **Low Potential.** Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the Project site is unsuitable or of very poor quality. The species is not likely to be found on the site.
- 3) **Moderate Potential.** Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the Project site is unsuitable. The species has a moderate probability of being found on the site.
- 4) **High Potential.** All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the Project site is highly suitable. The species has a high probability of being found on the site.
- 5) **Present.** Species is observed on the Project site or has been recorded (i.e. CNDDDB, other reports) on the Project site recently.

Site visits and habitat assessment surveys were conducted to identify whether suitable habitat for special status species occurs in the Project site. Site visits and habitat

assessments are not intended to determine the actual presence or absence of a species; however, if a special status species was observed, its presence was recorded and discussed. Targeted rare plant surveys were conducted to detect the presence of sensitive plants identified as having potential to occur in the literature review. Species found to have potential to occur at the Project site based on the literature review, habitat assessments and botanical surveys are discussed in Section 4.

### *3.3 Conservation Plans*

The Project was evaluated to determine if it fell within an area covered under an HCP or NCCP. The appropriate agencies were contacted to determine if activities were covered under or conflicted with existing plans.

## **4.0 FINDINGS**

The following sections present the findings of the literature review, site visits, habitat assessments and botanical surveys conducted for the Project.

### *4.1 Biological Setting*

#### Climate

The Project site is characterized as having a Mediterranean climate with cool, rainy winters and warm, dry summers. The Project is located on the east slope of Eureka Peak in the Berkeley Hills. Berkeley Hills are a range of the Pacific Coast Ranges that extend north from Castro Valley to San Pablo Bay. The Berkeley Hills affect the local climate by their elevation and situation. The hills block the oceanic marine layer, which is most developed during the summer months, creating a "fog shadow" effect on the areas directly east. Areas to the east of the hills are consequently warmer than areas west of the hills. In winter, the reverse occurs, with the fog confined to areas east of the hills. The elevation of the hills also has an effect on rainfall, increasing the amount of precipitation in Orinda compared with surrounding areas east of the Hills. The average annual rainfall for Orinda is 24 inches. In the spring and fall, hot, dry, and gusty winds blow across the ridges of the Berkeley Hills, posing a significant fire danger. Average temperatures in Orinda range from 55°F in winter and 71°F in summer. Orinda is located in a hilly area and microclimates create temperature variations between short distances.

#### Soils

The Project site is within a steep loamy upland area at the crest of the Berkeley Hills. The Berkeley Hills are overlain by Tertiary sedimentary and volcanic rocks. No unique soil types (e.g., limestone, serpentine, gabbro) were identified in the Web Soil Survey near the Project site (NRCS 2015). Soils include Los Gatos and Gilroy clay loam. Los Gatos soils are found on steep to very steep areas at elevations of 200 to 4,000 feet. They are formed in residuum from sandstone, shale and metasedimentary rock. The Los Gatos series is well drained and have a high run-off rate with moderate permeability. The surface and subsoils are moderately acidic. The Gilroy series consists of moderately deep, well drained soils that formed in material weathered from basic igneous and metamorphic rocks. The surface and subsoil are mainly

moderately acid to neutral throughout, tend to become less acid with depth and are moderately alkaline in some pedons just above the bedrock. The Gilroy series is well drained; with medium to rapid runoff; moderately slow permeability, and a moderate to moderate-high erosion rating depending on the steepness of slopes. These types of native soils may support special status plant species.

#### Vegetation and Habitat Communities

The Project site is primarily within an annual grassland habitat as defined by Mayer and Laudenslayer (1988). Annual grassland habitats are open grasslands composed primarily of introduced annual grass species. Vegetative structure in annual grasslands depends largely on weather patterns and livestock grazing. Grass species composition is greatly influenced by seasonal and annual fluctuations in weather patterns. Grass species observed on site were typical of annual grasslands and included: wild oats (*Avena fatua* and *Avena barbata*), soft chess brome (*Bromus hordeaceus*), ripgut brome (*Bromus diandrus*) and Italian wildrye (*Festuca perennis*). Common forbs included California poppy (*Eschscholzia californica*), rough cat's ear (*Hypochaeris radicata*) and longbeak stork's bill (*Erodium botrys*).

Many wildlife species use annual grasslands for foraging. Special grassland habitat features such as cliffs, caves, ponds, or woody plants are used for breeding, resting, and escape cover (Mayer and Laudenslayer 1988). Wildlife characteristic of grasslands include: western fence lizard, garter snake, and western rattlesnake, California ground squirrel, Botta's pocket gopher (*Thomomys bottae*), western harvest mouse (*Reithrodontomys megalotis*), California vole (*Microtus californicus*), badger (*Taxidea taxus*), and coyote (*Canis latrans*). Sensitive birds known to breed in annual grasslands include the burrowing owl (*Athene cunicularia*) and short-eared owl (*Asio flammeus*). Grasslands provide key foraging habitat for numerous raptor species.

The grassland is bordered by coast live oak woodland to the north and east. The existing reservoir is located on the margin of annual grassland and coast live oak woodland habitat. The Dos Osos Pumping Plant is also surrounded by coast live oak woodland habitat. Both sites are bordered by Monterey pines (*Pinus radiata*) that were planted in these locations for screening. From Sonoma County south, coastal oak woodlands are usually dominated by coast live oak (*Quercus agrifolia*) (Mayer and Laudenslayer 1988). Big leaf maple (*Acer macrophyllum*), valley oak (*Quercus lobata*), California bay (*Umbellularia californica*), madrone (*Arbutus menziesii*) and elderberry (*Sambucus nigra*) may also be present. Typical understory plants in dense coast live oak woodlands include shade tolerant shrubs such as California blackberry (*Rubus ursinus*), creeping snowberry (*Symphoricarpos mollis*), coffeeberry (*Frangula californica*), toyon (*Heteromeles arbutifolia*), and herbaceous plants such as bracken fern (*Pteridium aquilinum* var. *pubescens*), poison oak (*Toxicodendron diversilobum*), California polypody (*Polypodium californicum*), and miner's lettuce (*Claytonia perfoliata*).

Oak woodlands are considered vital habitats for the conservation of many bird and mammal species. Over 110 species of birds have been found to nest in coast live oak habitats (Mayer and Laudenslayer 1988). At least 60 species of mammals use oak habitats in some way. Oak trees

provide acorns, snags, trunk cavities, and litter that are used for food, nesting and cover by many species. California quail (*Callipepla californica*), gray squirrels (*Sciurus griseus*), and black-tailed deer (*Odocoileus hemionus columbianus*) are often completely dependent on acorns in fall. California slender salamander (*Batrachoseps attenuatus*), ensatina (*Ensatina eschscholtzii*), and California newt (*Taricha torosa*) can be found underneath surface litter and logs in oak habitats. A variety of special-status bat species, such as the pallid bat (*Antrozous pallidus*), may roost in mature oak snags or cavities. The San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*) dens in the blackberry and poison oak understory of this community. Coast live oak woodlands may provide migration and dispersal corridors for a variety of wildlife species.

Coyote brush scrub habitat is present to surrounding the Project site. Coyote brush scrub is a common and widespread scrub community found along the California coast, Coast Ranges and the Sierra Nevada foothills. Coyote brush scrub is characterized by the presence of coyote brush (*Baccharis pilularis*) and an indistinct assemblage of shrub, sub-shrub and herbaceous understory associates (Sawyer et al. 2009). These scrub types consist of low shrubs up to six feet tall with a well-developed herbaceous or low woody understory. Vegetative cover is usually dense with scattered grassy openings. Stands of coyote brush may transition to forest and woodland habitats or exist as persistent, relatively stable communities. The scrub patch adjacent to the site is in the late seral stage of succession, characterized by mature stands of coyote brush with emergent oak and bay trees. Characteristic scrub species include poison oak, California blackberry, California rose (*Rosa californica*), and poison hemlock (*Conium maculatum*) among others. Bush monkeyflower (*Mimulus aurantiacus*), deer weed (*Acmispon glaber*) and California sagebrush (*Artemisia californica*) are also often present in local coyote brush scrub habitats.

Scrub habitat provides foraging and nesting habitat for bird species that are attracted to ecotones or the scrub canopy such as: white-crowned sparrow (*Zonotrichia leucophrys*), California quail, California towhee (*Melospiza crissalis*), dusky flycatcher (*Empidonax oberholseri*), wrentit (*Chamaea fasciata*), and the loggerhead shrike (*Lanius ludovicianus*). Mammals such as the San Francisco dusky-footed woodrat, brush rabbit (*Sylvilagus bachmani*), Botta's pocket gopher, deer mice (*Peromyscus maniculatus*) and gray fox (*Urocyon cinereoargenteus*) use this habitat for cover and foraging. Coyote brush scrub habitat provides habitat for reptiles such as common kingsnake (*Lampropeltis getula*), Alameda whipsnake and western fence lizard (*Sceloporus occidentalis*).

Ruderal habitat is present along the unpaved access road, fire road, adjacent to the pumping plant and within the existing tank site. Ruderal habitat occurs where native vegetation has been removed by grading or other surface disturbances and it is characteristic of roadsides and vacant lots. These areas often become recolonized by invasive exotic species, scattered shrubs and trees. Structures within ruderal areas can provide habitat for many native and non-native wildlife species that are adapted to human disturbance.

## 4.2 Sensitive Biological Communities

### Wetlands, Waters and Riparian Habitat

No wetlands, waters or riparian areas under the jurisdiction of the Corps, RWQCB or CDFW occur within the Project site. The nearest waterway is an ephemeral unnamed drainage in the headwaters San Pablo Creek. The drainage is located 200 feet to the southeast of the Project site. The tributary connects to an underground segment of San Pablo Creek about a mile downstream at the Orinda Village shopping center.

The National Wetlands Inventory identified three freshwater emergent wetlands within a mile radius of the Project (USFWS NWI 2015). The nearest cattle stock pond is located 0.8 miles to the southeast of the Project site. No obligate hydrophytes were identified within the Project site.

### Sensitive Natural Communities

A review of the CNDDDB indicates that 2 sensitive natural communities occur within 5 miles of the Project site: Northern Maritime Chaparral and Serpentine Bunchgrass. Neither of these communities occurs at the Project site.

The Northern Maritime Chaparral community is a fairly open chaparral (50-80% cover, usually fairly easy to walk through). It is dominated by several narrowly restricted Manzanita or Ceanothus species, and associated with sandy substrates within the zone of coastal fog incursion, usually on rolling to hilly terrain. Fire appears necessary for continued reproduction. It occurs from Santa Cruz to Sonoma County near the coast, usually as islands in mixed evergreen Forests of coast live oak, redwood (*Sequoia sempervirens*), and douglas-fir (*Pseudotsuga menziesii*), or adjacent to Northern Coastal Scrub (Holland 1986). Two northern maritime chaparral communities were identified in the CNDDDB within 5 miles of the Project site. One is located in the East Bay Regional Park District's Huckleberry Preserve and the other is located on EBMUD property just south of the Briones Reservoir off Bear Creek Rd.

The Serpentine Bunchgrass Grassland community is dominated by perennial bunchgrasses such as *Bromus*, *Melica*, *Nassella*, *Poa*, *Calamagrostis*, and *Festuca* genera. Total cover typically is low, but is markedly dominated by native species. Serpentine soils are scattered widely through the Coast Ranges (Holland 1986). One serpentine bunchgrass community was identified in the CNDDDB within 5 miles of the Project site. The community is located in Redwood Park, west of the Upper San Leandro Reservoir.

### Wildlife Movement Corridors

The Project site is located along a ridgeline to the east of Siesta Valley on land protected by the East Bay Municipal Utility District. This area is situated between open space in the Berkeley Hills to the west and protected watershed lands to the east surrounding San Pablo and Briones Reservoirs. Siesta Valley borders the ridge above the Caldecott Tunnel, which acts as an important corridor for wildlife traveling north or south across Highway 24 (CCC 2001). The Caldecott corridor links Tilden, Wildcat Canyon and Siesta Valley to the north with Sibley, Huckleberry and Redwood Regional Parks to the south. Land above the Caldecott Tunnel is the

only significant point of passage for animals between the two large open space areas described above (CCC 2001).

The Project site falls within open space that contributes to the greater Caldecott wildlife corridor. This area connects outlying populations and supports dispersal through the Berkeley Hills. Mountain lions, coyotes, bobcat, gray fox, black tailed deer, small mammals and reptiles including the threatened Alameda whipsnake may utilize this habitat. Numerous species may move through the Project site for daily home range activities, such as foraging or escape from predators. The Project will not create a barrier to, or substantially interfere with wildlife movements through the Caldecott corridor. The small size and situation of the Project site makes it unlikely to significantly impinge on animal movements. The paved Project foot print is expected to replace less than 0.3 acres of grassland habitat. Areas with dense riparian or scrub habitat that provide cover for wildlife movement will not be significantly impacted. Coast live oak woodland canopy will be retained to the extent possible within the short section affected by the paved access road. Human disturbances from construction may have a temporary impact on animals dispersing or moving through this area during work hours. Long term impacts from human disturbance will be minimal because the tank will only be accessed a few times a month. The site borders a horse arena and residential neighborhood to the north, which contribute similar anthropogenic nuisances to wildlife.

#### *4.3 Sensitive Plant Species*

Appendix A describes all potentially occurring sensitive species from the CNDDDB 5-mile query, USFWS list and EBMUD database query. Sensitive plant or animal species found within 1-mile of the Project are discussed individually below.

Appendix B lists the rare and endangered plant species queried from a nine quad search of the statewide CNPS Inventory (CNPS 2015). Locally rare, unusual or significant plants identified in the literature review as occurring in the Orinda Region area also listed in Appendix B (Lake 2010). None of the statewide or locally rare sensitive plant species identified in the literature review were observed at the Project site during botanical surveys. However, two additional locally rare plant species, the California ponysfoot and rayless arnica, were discovered and are described below. A letter describing rare plant survey results and a complete list of plants observed during botanical surveys can be found in Appendix C.

#### **Bent-flowered fiddleneck (*Amsinckia lunaris*)**

**Status: Fed-None State-Special Plant CNPS-1B.2 ALA/CC-A2**

Bent-flowered fiddleneck is an annual herb, less than 60 cm tall, that is endemic to California. It occurs in coastal bluff scrub, cismontane woodland, and valley and foothill grassland below 1,650 feet in elevation. The species blooms from March through June. Potential land use factors that might explain the species distribution patterns (e.g. grazing and fire regimes) need further investigation. There are two CNDDDB records of this species within 1-mile of the Project site. One population is located along San Pablo Ridge, north of Vollmer Peak and South of Wildcat Canyon Rd. The other population is located west of Siesta Valley on a ridgeline near Grizzly Peak

Blvd. Both of these populations appear to be in grazed grasslands on EBMUD property. Habitat suitability for this species is moderate within the grasslands at the Project site. However, this species was not observed during botanical surveys and has no potential to occur (Parr 2016).

#### **Pallid Manzanita (*Arctostaphylos pallida*)**

**Status: Fed-Threatened State-Endangered CNPS-1B.1 ALA/CC-A1**

Pallid manzanita is a fire-adapted shrub that requires the maritime climatic influence. The plant grows to a height of 4 meters or more and flowers from December through March. The plant has a very limited distribution in Alameda and Contra Costa Counties. It is found in broad-leafed upland forests, closed cone coniferous forests, cismontane woodlands, chaparral and coastal scrub habitats. The largest, most dense stands occur in shales and cherts, with smaller populations in sandstones. Pallid manzanita often grow on rocky ridges and outcrops with little or no topsoil. Chaparral habitats on the shady side of ridges may also support the species.

No critical habitat for pallid manzanita has been designated. Based on CNDDDB records, the closest known populations are located a little over two miles away north-west of the Project site in Tilden Regional Park. The next closest population is located in Sibley Regional Park 2.5 miles to the South of the Project site. No populations of pallid manzanita have been documented in the Siesta Valley Area. Habitat within the Project site is unsuitable for the species given the grassland community and clay soils present at the site. The species was not observed during botanical surveys and has no potential to occur (Parr 2016).

#### **Rayless arnica (*Arnica discoidea*)**

**Status: Fed-None State-None CNPS-None ALA/CC-B**

Rayless arnica is in the sunflower family. It is a rhizomatous perennial herb native to the western United States (iNaturalist 2015). The species is associated with foothill woodlands, forests and chaparral habitat. It blooms from April to June. It is an uncommon species with fewer than five populations known locally; however, all EBMUD East Bay watershed lands are considered within the natural range of the species. The species may be difficult to distinguish due to its floral characteristics. The species was observed during rare plant surveys and is present at the Project site (Parr 2016).

#### **Oakland star-tulip (*Calochortus umbellatus*)**

**Status: Fed-None State-None CNPS-4.2 ALA/CC-A2**

Oakland star-tulip is a perennial bulbiferous herb in the Lily family. The plant is found within chaparral, valley grassland, yellow pine forest and mixed evergreen forest. The plant has an affinity for serpentine soils. The species can be found in rocky gaps in chaparral communities and under tree or shrub canopy on moist hillsides. It blooms from March through May. The species is a California endemic found primarily in the San Francisco Bay area. The species is locally rare and is known to occur within the Orinda region (Lake 2010). There are two occurrences of Oakland star-tulip within EBMUD's managed species database, which are located 0.4 miles to the east of the Project site within coast live oak woodland. Habitat suitability for this species is moderate within the grassland, scrub and oak woodlands at the

Project site. However, this species was not observed during targeted botanical surveys and has no potential to occur (Parr 2016).

**California ponyfoot (*Dichondra donelliana*)**

**Status: Fed-None State-None CNPS-None ALA/CC-A1**

California ponyfoot is in the morning glory family. It is a creeping perennial herb occurring along the north coast, Sierra Nevada foothills, central coast and the San Francisco Bay Area. The species is associated with coastal prairie and northern coastal scrub communities. It is an uncommon species found on open slopes and in moist fields. It blooms from January through March. The species is likely often overlooked because of its diminutive nature and habit of growing in tall grasses (I. Parr, personal communication, August 7, 2015). Although the species is locally rare, it is not considered sensitive by CNPS. The species is not endemic to California and has not been confirmed to be a native species (I. Parr, personal communication, August 7, 2015). This species is considered locally rare with less than two known occurrences. The species was observed during rare plant surveys and is present at the Project site (Parr 2016).

**Western leatherwood (*Dirca occidentalis*)**

**Status: Fed-None State-Special Plant CNPS-1B.2 ALA/CC-A2**

This western leatherwood is a deciduous shrub occurring in closed-cone pine forest, north coastal coniferous forest, and wetland-riparian areas. It is endemic to the San Francisco Bay Area. It grows on moist and shaded slopes. Yellow flowers emerge prior to leafing from January to April. There are 28 occurrences in EBMUD's managed species database of the western leatherwood within a 1 mile radius of the Project site. The two clusters identified in the database are located 0.75 miles to the east and the west of the Project site. There are four records of the species in the CNDDDB within a one mile radius. One of the CNDDDB occurrence buffers overlaps the Project site; however, this occurrence was mapped as a "best guess" referencing a siting along the east slope of Eureka Peak. Habitat suitability for the species is moderate within the oak woodlands at the Project site. However, this species was not observed during botanical surveys, and has no potential to occur (Parr 2016).

**Diablo helianthella (*Helianthella castanea*)**

**Status: Fed-None State-Special Plant CNPS-1B.2 ALA/CC-A2**

Diablo helianthella is a perennial herb endemic to the San Francisco Bay Area, occurring in the Diablo Range, Berkeley Hills, and San Bruno Mountain. Diablo helianthella is associated with thin, rocky, well-drained soils. It is found in grassy openings in woodlands, chaparral, and coastal scrub, often at the transition zone between woodland and chaparral. The bloom period for the species is March through June. There are seven occurrences of the species within one mile of the Project site recorded in EBMUD's managed species database. The closest observation is 0.2 miles from the Project site. There are three occurrences in the CNDDDB within one mile of the Project site. Habitat suitability for this species is moderate within the Project site within the woodland and grassland ecotone. However, this species was not observed during botanical surveys and has no potential to occur within the Project site (Parr 2016).



**Santa Cruz tarplant (*Holocarpha macradenia*)****Status: Fed-Threatened State-Endangered CNPS- 1B.1 ALA/CC- A1**

The Santa Cruz tarplant is an endangered annual herb endemic to Northern California. The plant likes to inhabit terraced locations of coastal prairie, coastal scrub and valley or foothill grasslands with sandy or clay soils at elevations below 700 feet (CNPS 2015). The plant blooms from June through October. All known extant populations within Contra Costa County are introduced (CNPS 2015). The last remaining natural population in the San Francisco Bay Area was extirpated by development in 1993 (CNPS 2015). The plant is threatened by urbanization, agriculture, non-native plants, and a lack of appropriate ecological disturbance (CNPS 2015).

The USFWS designated 2,902 acres of critical habitat for the species in Contra Costa, Santa Cruz, and Monterey Counties in October 2002. Primary constituent elements include: (1) Soils associated with coastal terraces prairies, including the Watsonville, Tierra, Elkhorn, Santa Inez, and Pinto series, (2) Plant communities that support associated species such as: *Nassella sp.*(needlegrass), *Danthonia californica*(California oatgrass), members of the genus *Hemizonia* (other tarplants), *Perideridia gairdneri* (Gairdner's yampah), *Plagiobothrys diffusus* (San Francisco popcorn flower), and *Trifolium buckwestiorum* (Santa Cruz clover), and (3) Physical processes, that maintain the soil structure and hydrology that produce the seasonally saturated soils.

An area designated as critical habitat is located on San Pablo Ridge within Wildcat Canyon Regional Park about 6 miles north-west of the Project site. The Project site does not fall within critical habitat for the species. All wild populations are extirpated in Contra Costa County and no propagation efforts have occurred in the Siesta Valley area that could provide a source of seeds to the site. The species was not observed during botanical surveys and has no potential to occur in the Project site (Parr 2016).

**Tall Layia (*Layia hieracioides*)****Status: Fed-None State-None CNPS-None ALA/CC-A2**

Tall layia is an annual herb in the daisy family. It is found in open, semi-shady, or disturbed sites. It can be found in coastal sage scrub, mixed evergreen forest, foothill woodland and chaparral communities. It flowers from April through July. It is endemic to California, where it is known from around the San Francisco Bay Area. The species is considered locally rare and is known to occur in the Orinda Region (Lake 2010). There are four occurrences of tall layia within EBMUD's managed species database. The closest observation is within a coast live oak woodland 0.3 miles from the Project site. Habitat suitability for the species is moderate in the Project site in the oak woodland and grassland ecotone. However, this species was not observed during botanical surveys and has no potential to occur within the Project site (Parr 2016).

**Oregon meconella (*Meconella oregana*)****Status: Fed-None State-Special Plant CNPS-1B.1 ALA/CC – A2**

Oregon meconella is a small annual herb native to Oregon, California, Washington and British Columbia. It is found within coastal prairie and coastal scrub habitats. It grows on sandy bluffs,

meadows and stream banks, at elevations of less than 1,000 feet (iNaturalist 2015). The plant blooms March through May. Flowers are white and extend from long, thin solitary stalks. The plant is often hidden among grasses at lower elevations. Five occurrences are known in California. The CNDDDB has one occurrence of the plant located 0.7 miles to the north-west of the Project site. However, the mapped location is believed to be inaccurate. This plant community has been surveyed by EBMUD staff and the recorded location is within grassland and coyote brush ecotone on San Pablo Ridge, approximately 1.5 miles from the Project site (EBMUD FWD 2015). The population is located on a steep slope with numerous rocky outcrops. The plant was last observed in 2009. Habitat suitability is low within the Project site due to the absence of moist sandy soils. This species was not observed during botanical surveys and has no potential to occur within the Project site (Parr 2016).

### **Marin knotweed (*Polygonum marinense*)**

**Status: Fed-None State-None CNPS-3.1**

Marin knotweed is an annual herb found in coastal salt or brackish marshes and swamps (CNPS 2015). The species blooms from April through October and grows to a maximum height near 40 centimeters. It is endemic to California, where it is known from just a few locations north and east of San Francisco Bay. The species is known from less than 20 occurrences and may be threatened by coastal development and foot traffic (CNPS 2015). The CNDDDB buffer for this species encompasses the entirety of Oakland and the exact location is not mapped. This species has no potential to occur at the Project site because coastal marsh habitat is absent.

### **California skullcap (*Scutellaria californica*)**

**Status: Fed-None State-None CNPS-None ALA/CC-A2**

The California skullcap is a perennial herb in the mint family. It is a small plant growing up to half a meter high, bearing small, white or yellowish snapdragon-like flowers (iNaturalist 2015). It is endemic to California and is found in the scrub and low elevation woodlands. The flowers bloom from June through July (Lake 2010). The species is known to occur in the Orinda Region (Lake 2010). Four occurrences of the species were found in the Siesta Area within 1 mile of the Project site. The nearest occurrences of the plant are 1) within a grassland/woodland ecotone 0.3 miles to the south of the Project site and 2) within Coast Live Oak woodlands 0.3 miles to the east of the Project site. Habitat suitability for the species is moderate within the Project site along the edge of the oak woodland. However, this species was not observed during botanical surveys and has no potential to occur within the Project site (Parr 2016).

### **Most beautiful jewel-flower (*Streptanthus albidus* ssp. *peramoenus*)**

**Status: Fed-None State-None CNPS-1B.2 ALA/CC- A2**

The species is a rare purple flowering annual herb. The bloom period is from March to October. It is found in serpentine soils within chaparral, open oak woodland and valley or foothill grasslands between 120-730 meters in elevation. The plant is potentially threatened by development, grazing, road construction and recreational activities (CNPS 2015). The closest population to the Project site found within the CNDDDB is located 0.8 miles to the west off Claremont Canyon and Fish Ranch Rd. Habitat suitability for the species is low within the

Project site because serpentine soils are not present. This species was not observed during botanical surveys and has no potential to occur within the Project site (Parr 2016).

#### *4.4 Sensitive Wildlife Species*

Appendix A lists the CNDDDB occurrences of sensitive species within five miles of the Project site and species identified on the USFWS Official Species List for the Project. A copy of the USFWS Species List is provided in Appendix D. Sensitive wildlife species for which CNDDDB occurrences have been noted within 1-mile of the Project site are describe individually below. All USFWS identified species are also discussed in detail below, even if they have no potential to occur in the Project site. None of the species were observed in the Project site during site visits. The results of the Habitat Assessment for the Bridge's coast range shoulderband snail are described below and the full assessment can be found in Appendix E.

##### Amphibians

##### **California tiger salamander (*Ambystoma californiense*)**

##### **Status: Fed- Threatened State-Species of Special Concern**

The central population of the California tiger salamander is listed as federally threatened where Sonoma and Santa Barbara populations are listed as endangered. The salamander is large and stocky with a broad rounded snout. It has small eyes that protrude from its head. The species is black dorsally and laterally with white or pale yellow spots or bars (USFWS 2004). The species is restricted to grasslands, low foothills and oak savannahs with pools or ponds that are necessary for breeding (USFWS 2004). They are most often found in vernal pools and seasonal stock ponds but have been found in a variety of man-made wetlands. The species spends much of its life underground, using burrows made by small mammals. The salamander emerges in November and most breeding occurs from December through February. Adults are known to travel as far as a mile to breeding sites. Eggs hatch in 2-4 weeks and larvae metamorphose in 4-5 months.

Critical habitat for the central population of California tiger salamander was designated in September 2005. Primary constituent elements include: 1) standing bodies of freshwater, 2) barrier free upland habitats that contain small mammal burrows, 3) upland areas between occupied locations that allow for dispersal, and 4) landscape features that support vernal pool complexes within an upland matrix.

The Project site does not fall within critical habitat. No California tiger salamanders occurrences are listed in the CNDDDB within a 5 mile radius of the Project site. The East Bay Regional Park District has been monitoring California tiger salamander populations on 97,000 acres of park land in Alameda and Contra Costa counties since 1990 (Bobzien and DiDonato 2007). Based on their surveys, California tiger salamander occurrences in East Bay Regional Park lands are limited to east of highway 680 in Contra Costa County and south of highway 580 in Alameda County. The Project is located within a mile of one seasonal cattle stock pond. However, hundreds of pond and creek surveys have been completed adjacent to the Project site under the EBMUD Low Effect East Bay Habitat Conservation Plan (EBMUD Watershed Lands HCP) and

no California tiger salamanders have been found. Further, the Project site is isolated from known populations. There is no potential for the species to occur within the Project site.

### **California red-legged frog (*Rana draytonii*)**

#### **Status: Fed- Threatened State-Species of Special Concern**

The California red-legged frog (CRLF) occurs from sea level to elevations of about 5,200 feet. It has been extirpated from 70 percent of its former range and now is found primarily in coastal drainages of central California, from Marin County, California, south to northern Baja California, Mexico (USFWS 2002a). California red-legged frog uses a variety of areas, including aquatic, riparian, and upland habitats. Breeding sites of the California red-legged frog are found in aquatic habitats including: pools and backwaters within streams and creeks, ponds, marshes, springs, sag ponds, dune ponds and lagoons. Additionally, CRLF frequently breed in artificial impoundments such as stock ponds (USFWS 2002a). Breeding typically starts in November and continues into April (USFWS 2002a). CRLF deposit eggs between December and early April. Eggs are attached to vegetation in shallow water. Larvae metamorphose in 3.5 to 7 months, typically between July and September. The frog is known to travel over 1.5 miles from breeding locations (Bulger et al. 2003). Dispersal may occur overland or via riparian areas. CRLF may aestivate in small mammal burrows and moist leaf litter (USFWS 2002a).

The USFWS designated critical habitat for this species in April 2006 and was revised in 2010. Primary constituent elements include: 1) Standing bodies of freshwater for breeding, 2) Perennial or ephemeral freshwater ponds or streams that provide habitat for refuge, dispersal or foraging, 3) Upland areas within 1 mile of aquatic habitat that support aquatic habitats and provide food, shelter and predator avoidance, and 3) Dispersal habitat within uplands or riparian areas located within 1 mile of each other that support movement between sites. The Project is not located within critical habitat for the species. The closest critical habitat unit is CCS-1 for the Berkeley Hills located approximately 4 mile away.

There are multiple sightings of CRLF in ponds and wetlands to the north and east of the Project site; however, there are no CNDDDB observations within a 1 mile radius (CNDDDB 2015). The closest observation of CRLF is 1.3 miles away at the Wagner Ranch School pond (EBMUD FWD 2015). CRLF are present in several other ponds and wetlands within the San Pablo and Briones Watersheds. These frogs may use San Pablo Creek to move between habitats, particularly in the breeding season. Variable flows in San Pablo Creek make the habitat marginal for CRLF breeding and no CRLF have been observed in the creek. There is no aquatic habitat at the site and limited potential for upland estivation or dispersal at the site. For these reasons, the species has low potential to occur within the Project site. This species was not observed during the site assessment.

### Reptiles

#### **Western pond turtle (*Actinemys marmorata*)**

#### **Status: Fed-None State-Species of Special Concern**

The western pond turtle is the only native aquatic turtle species found in California. This species is found from the San Francisco Bay north, west of the crest of the Cascades and Sierras, into

Washington and British Columbia. They occur in ponds, lakes, rivers, streams, creeks, marshes, and irrigation ditches, with abundant vegetation, and either rocky or muddy bottoms, in woodland, forest, and grassland. In streams, they prefer pools to shallower areas. Logs, rocks, cattail mats, and exposed banks are required for basking. They may enter brackish water and even seawater. Most nesting sites are located within 1,000 feet of aquatic habitat; however, females have been tracked travelling over a mile to nest (Abel 2010).

The Project site is located within a mile of a seasonal stock pond that may provide habitat for the species. There is no aquatic habitat at the Project site or riparian corridors that lead to the Project site from the pond. There are no occurrences in the CNDDDB or EBMUD databases within a 1 mile radius of the Project site. The closest occurrence is located in an EBMUD stock pond 1.6 miles north-west of the Project site (EBMUD FWD 2015). There is low potential for western pond turtle to occur within the Project site.

### **Alameda whipsnake (*Masticophis lateralis*)**

#### **Status: Fed-Threatened State-Threatened**

The Alameda whipsnake (or Alameda striped racer) is a slender, fast-moving, diurnally active snake with a slender neck, broad head and large eyes. Adults reach a length of 3 to 4 feet. Their dorsal surface is sooty black with a distinct yellow-orange stripe down each side. The anterior portion of their ventral surface is orange-rufous colored, the midsection is cream colored and the tail is pinkish. The Alameda whipsnake's range is restricted to western and central Contra Costa and Alameda Counties. They are typically found in chaparral, northern coastal sage scrub and coastal sage communities (USFWS 2006a). Home ranges of Alameda whipsnakes tend to be concentrated around patches of chaparral or other open canopy scrub habitat. Grassland and riparian areas adjacent to scrub habitat provide important movement and connection corridors and may be part of an individual's home range (Swaim 1994). The snake has been documented in grassland, savanna and riparian habitats at distances greater than 500 feet from scrub or chaparral communities (Swaim 2000). Core areas (areas of concentrated use) of the Alameda whipsnake most commonly occur on east, south, southeast, and southwest facing slopes. However, recent information indicates that whipsnakes do make use of north facing slopes in more open stands of scrub habitat. Rock outcrops with deep crevices or abundant rodent burrows are important habitat components for overnight dens, refuges from predators and excessive heat, and foraging. The Alameda whipsnakes have two seasonal peaks in activity, one during the spring mating season and the other during late summer/early fall.

The USFWS designated critical habitat for this species in October 2006. The Project site falls within critical habitat unit 6. Primary constituent elements for the Alameda whipsnake include (1) scrub/shrub communities with a mosaic of open and closed canopy, (2) woodland or annual grassland plant communities contiguous to lands containing scrub/shrub communities with a mosaic of open and closed canopy, and (3) lands containing rock outcrops, talus and small mammal burrows within or adjacent to (2) and/or (3) (USFWS 2006a). The Project site is located in grassland on a south-easterly aspect within a mosaic of scrub and oak woodlands. This area has abundant small mammal burrows and rock outcrops are likely to occur nearby.

There are numerous local occurrences listed within the CNDDDB for the species; however, site specific information is not made publicly available due to sensitivity concerns. EBMUD has documented 12 observations of Alameda whipsnake less than 1 mile from the Project site (EBMUD FWD 2015). Six of these snakes were captured in Siesta Valley as part of a study conducted by EBMUD in 2013 and 2014 (Price et al. 2014). The occurrence nearest the Project site was observed in 1990 and is located 0.4 miles of the south-west of the site. The grassland where the new tanks will be constructed is located within 300 feet of a scrub patch identified as core habitat for the species per EBMUD's Watershed Lands HCP. There is a high potential for the Alameda whipsnake to occur within the Project site.

### Birds

#### **California clapper rail (*Rallus longirostris obsoletus*)**

##### **Status: Fed-Endangered State-Endangered**

The species is one of the largest in the rail family. The bird has a hen like appearance, a long slightly downward-curving bill, rufous colored breast, and black and white barred flanks (USFWS 2013). The distribution of California clapper rails is restricted almost entirely to the marshes of the San Francisco Bay Estuary (USFWS 2013). Throughout their distribution, California clapper rails occur within a range of salt and brackish marshes. In south and central San Francisco Bay and along the perimeter of San Pablo Bay, rails typically inhabit salt marshes dominated by pickleweed (*Salicornia virginica*) and Pacific cordgrass (*Spartina foliosa*). Nests are built in minimally elevated areas to prevent inundation during high tide. Small natural berms along tidal channels with relatively tall vegetation are choice nesting locations (USFWS 2013). The breeding period is prolonged, starting in mid-March and extending into August (USFWS 2013). No critical habitat has been designated for the California clapper rail. There is no marsh habitat present near the Project site and there is no potential for the species to occur.

#### **California least tern (*Sternula antillarum*)**

##### **Status: Fed-Endangered State-Endangered**

The species is a small tern found along the coast. The bird has a distinctive black cap and black stripes running from the cap across the eyes to the beak, which contrast with a white forehead. Upper parts are gray and the breast is white. Their bills and legs are orange. The tail is short and forked. The species nests in colonies on relatively open beaches kept free of vegetation by tidal action (USFWS 2006b). They are very gregarious and forage, roost, nest and migrate in colonies. Nesting begins in April or May. Fall migration commences the last week of July and first week of August when adults move south along the California coast (USFWS 2006b). No critical habitat has been designated for the California least tern. There is no coastal beach habitat in the Project vicinity and the species has no potential to occur in the Project site.

#### **Special-Status Bird Species**

Special status bird species that are protected under the Migratory Bird Treaty Act and/or by the California Fish and Game Code have potential to nest within the Project site. The fully protected white-tailed kite, state threatened Swainson's hawk and a suite of other raptor species have the potential to occur near the Project site. Several raptors, including the American kestrel (*Falco sparverius*), barn owl (*Tyto alba*), Cooper's hawk (*Accipiter cooperii*), great horned owl (*Bubo*

*virginianus*), red-tailed hawk (*Buteo jamaicensis*), western screech owl (*Megascops kennicottii*), sharp-shinned hawk (*Accipiter striatus*), and short-eared owl may nest on or near the Project site. Song birds of conservation concern including the bell's sparrow (*Amphispiza belli belli*) and loggerhead shrike (*Lanius ludovicianus*) also have potential to occur. Bird species may use trees, shrubs, man-made structures or the ground for nesting habitat. There is high potential for bird nesting to occur in the Project site.

### Fish

#### **Delta Smelt (*Hypomesus transpacificus*)**

##### **Status: Fed-Threatened State-Endangered**

Delta smelt are a euryhaline species, endemic to the Sacramento-San Joaquin estuary. They are a translucent, slender bodied fish, typically 60 to 70 mm, long with a steely blue sheen on their sides (Moyle 2002). Delta smelt tolerate wide-ranging salinities and water temperatures. Delta smelt feed primarily on small planktonic crustaceans, and occasionally on insect larva. Although they are restricted in range, delta smelt use different parts of the estuary at different life history stages. During the late winter and spring, Delta smelt migrate upstream into freshwater or slightly brackish areas to spawn. Spawning occurs primarily during April through mid-May in sloughs and shallow edge areas in the upper Delta, in the Sacramento River above Rio Vista and in Montezuma Slough (Moyle 2002).

Critical habitat for Delta smelt was designated by USFWS in December 1994. Designated critical habitat includes areas of all water bounded by and contained in Suisun Bay and the existing contiguous waters contained within the Delta. The primary constituent elements essential to the conservation of the delta smelt are: physical habitat, water, river flow, and salinity concentrations required to maintain delta smelt habitat for spawning, larval and juvenile transport, rearing, and adult migration. The Project site does not fall within designated critical habitat and is outside of the known range for the species. There is no salt or brackish water habitat in the Project vicinity and the species has no potential to occur in the Project site.

#### **Central Coast Steelhead (*Oncorhynchus mykiss irrideus*)**

##### **Status: Fed-Threatened State-Special Animal**

The Central California Coast steelhead distinct population segment (DPS) was listed as a federally threatened species in 2000 (65 FR 36074). The DPS includes all naturally spawned steelhead populations below natural and manmade impassable barriers in California streams from the Russian River (inclusive) to Aptos Creek (inclusive), and the drainages of San Francisco, San Pablo, and Suisun bays eastward to Chipps Island at the confluence of the Sacramento and San Joaquin Rivers (NMFS 2015). Adults migrate through the San Francisco Bay and San Pablo Straits to freshwater spawning and rearing areas. Steelhead have the ability to spawn repeatedly, and can return to the Pacific Ocean after spawning in freshwater. Juvenile steelhead may spend up to four years residing in fresh water prior to migrating to the ocean as smolts.

San Pablo and Wildcat creeks once supported steelhead runs, and while steelhead cannot currently migrate up either stream to spawn, lower reaches could support transient individuals.

East Bay rainbow trout are genetically identical to the Central Coast steelhead. In many East Bay streams, they are resident species and do not exhibit anadromy. San Pablo Creek had a large steelhead run prior to the construction of San Pablo Dam in 1919. The last recorded sighting of a large steelhead population was in 1953 (Leidy 2005). While anadromous salmonids used San Pablo Creek historically, no direct evidence of a viable run occurring in the watershed exists (Leidy et al 2005 and Leidy 2007). The historical steelhead run was extirpated due to the construction of passage barriers in the lower reaches of the stream (Leidy et al 2007). EBMUD fisheries biologists have conducted annual presence absence sampling in San Pablo Creek from 2006 through 2015 and no salmonids were found from I-80 to Hwy 24 (EBMUD FWD 2015).

Critical habitat was designated for Central Coast steelhead by NMFS in September 2005 which includes San Francisco and San Pablo bays. Primary constituent elements include: 1) Freshwater spawning sites with water quantity and quality conditions and substrate supporting spawning, incubation and larval development, 2) Freshwater rearing sites with appropriate water quality and physical habitat conditions, 3) Freshwater migration corridors free of obstruction and excessive predation with water quantity and quality conditions and natural cover, and 4) Estuarine areas free of obstruction and excessive predation with appropriate water quality and physical habitat conditions. No freshwater streams or riparian habitat occur within the Project site. There is no potential for the species to occur within the Project site.

### Mammals

#### **Pallid bat (*Antrozous pallidus*)**

**Status: Fed-None State-Species of Special Concern**

The Pallid Bat ranges from western Canada to central Mexico. They are found throughout California except in the high Sierra from Shasta to Kern Counties and the northwest coast, primarily at lower and mid-elevations. They occur in a number of habitats, including coniferous forests, deciduous woodlands, brushy terrain, rocky canyons, open farm land, and desert. In northern California, this species is associated with oak habitat. Pallid bats are primarily a crevice roosting species, and select daytime roosting sites where they can retreat from view. The pallid bat often roosts colonially in rock crevices, structures, and trees with suitable hollows. They have been located in tree cavities in oak, Ponderosa pine, coast redwood and giant Sequoia. There is one CNDDDB record of this species within 1-mile of the site. Mature oak trees may provide roosting habitat for this species in the Project site and there is moderate potential for the species to occur in the Project site. The species was not observed during site assessments.

#### **Townsend's big-eared bat (*Corynorhinus townsendi*)**

**Status: Fed-None State-Species of Special Concern**

The species inhabits a variety of plant communities including coastal conifer and broad-leaf forests, oak and conifer woodlands, arid grasslands, and deserts. Roosting sites include caves, mine tunnels, abandoned buildings, and other structures. They do not tuck themselves into cracks and crevices like many bat species do, but prefer to roost in the open hanging from walls and ceilings (Pierson and Rainey 1998). Females aggregate in colonies at nursery sites in the spring and remain there until young become independent in the fall (Pierson and Rainey 1998). The species is highly sensitive to human disturbances and a single visit by humans can cause



bats to abandon roosts. There are no structures with suitable openings for the Townsend's big-eared bat to roost within the Project site. There is one CNDDDB record of occurrence for the species within a mile of the Project site. The species may use habitat in the Project vicinity to forage. The species has a low potential to occur within the Project site.

**Berkeley kangaroo rat (*Dipodomys heermanni berkeleyensis*)**

**Status: Fed-None State-Extirpated**

Kangaroo rats were historically found in chaparral and scrub communities and adjacent grasslands (USFWS 2002b). Kangaroo rats are nocturnal burrowing rodents. They are adapted to arid conditions, having physiological adaptations to conserve water (USFWS 2002b). Little is known about the favored habitat of the Berkeley kangaroo rat. Field notes reference Berkeley kangaroo rats being collected on bare ridges near rocky outcrops and on thin soils with scattered chaparral species and small annual grasses (USFWS 2002b). In the original description of the species, the Berkeley kangaroo rat was known only from the open hill tops immediately east of the City of Berkeley. Specimens were collected in 1922 (Eureka Peak near the head of Siesta Valley) and in 1927 (lake in Orinda Park near Eureka Peak). By 1936, 12 specimens had been collected on Mt. Diablo. One specimen was collected at Strawberry Canyon in 1938. The last museum record is of a specimen was collected in 1940 at the Calaveras Reservoir Dam in Alameda County. There is no indication that Berkeley kangaroo rats were trapped after that date at any of the above locations, so the animal has been presumed to be extinct. There are 3 CNDDDB records (last observation 1938) of this species within a 1 mile radius of the site. Habitat for this species occurs on the Project site; however, there is low potential for occurrence because the species has not been seen for 75 years. This species was not observed during the site assessments.

**San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*)**

**Status: Fed- None State-Species of Special Concern**

The San Francisco dusky-footed woodrat is a medium sized rat. It is brown or grey above with white or dusky coloring on the feet, large ears and a hairy tail. The species is mostly nocturnal and active year round. They can be found in coast live oak woodlands, coyote brush scrub, riparian areas and other habitats with dense trees and shrubs. In riparian areas, the highest densities of woodrats and their nests (middens) are often encountered in willow thickets with an oak overstory. Woodrats typically build middens of sticks and other debris on the ground, in the lower branches of trees and occasionally in human-made structures. Middens are often reused and more than one woodrat may occupy the same nest. No San Francisco dusky-footed woodrat nests were observed during the site assessment but the species is ubiquitous within the San Pablo Watershed. The species has been observed in numerous locations within 1 mile of the Project site (EBMUD FWD 2015), and has a high potential to occur in the Project site.

**American badger (*Taxidea taxus*)**

**Status: Fed- None State-Species of Special Concern**

The American badger is a carnivore in the family Mustelidae (weasels). They range throughout California except for the humid coastal forests in the northwest portion of the state (Williams 1986). Populations have declined within the last century in California. The

badger is most abundant in grassland, savanna and mountain meadow habitats, but can be found anywhere with friable soils and high concentrations of burrowing rodents (Williams 1986). American badgers are generally nocturnal solitary foragers; however, in remote areas they are routinely observed foraging during the day. Badgers are less active in the winter and may spend extended periods of time in a state of torpor. Their front legs have large claws adapted for digging their prey out of underground burrows. They prey primarily upon ground squirrels (*Spermophilus spp.*) and pocket gophers (*Thomomys spp.*), although they may also take other rodents, reptiles, birds, eggs, insects, and carrion (Williams 1986).

Suitable habitat for American badger is present throughout the Project site and surrounding region. There is one historical occurrence of American badger within 1 mile of the Project site in Rattlesnake Canyon near Orinda, just east of the Project site (CNDDDB 2015). Badger sign has not been observed in Siesta Valley or the larger San Pablo Watershed by EBMUD Biologists (EBMUD FWD 2015). However, there is potential for badgers to reoccupy this location. The species is considered to have a low potential to occur within the Project site.

### **Special Status Bat Species**

In addition to the two bat species mentioned above, several sensitive bat species have at least some potential to occur within the Project site. Species include: the silver-haired bat (*Lasionycteris noctivagans*), hoary bat (*Lasiurus cinereus*), western mastiff bat (*Eumops perotis californicus*), long-eared myotis bat (*Myotis evotis*), long-legged myotis bat (*Myotis volans*), and Yuma myotis bat (*Myotis yumanensis*). These special status bat species typically use buildings, trees, bridges, and rock crevices for roosting habitat. Suitable roosting and foraging habitat is present for a number of special status bat species. Sensitive bat roosts have a moderate potential to occur within the Project site.

### Invertebrates

#### **Vernal Pool Fairy Shrimp (*Branchinecta lynchi*)**

##### **Status: Fed- Threatened State-Special Animal**

The vernal pool fairy shrimp is a small freshwater crustacean endemic to California and the Agate Desert of Southern Oregon (USFWS 2007). The vernal pool fairy shrimp occupies a variety of different vernal pool habitats, from small, clear, sandstone rock pools to large, turbid, alkaline, grassland valley floor pools (USFWS 2007). Although the species has been collected from large vernal pools, including one exceeding 25 acres, it tends to occur in smaller pools. It is most frequently found in pools measuring less than 0.05 acre found commonly in grass or mud bottomed swales, or basalt flow depression pools in unplowed grasslands. After temporary pools dry, offspring persist as desiccation-resistant embryos in the pool substrate (USFWS 2007). The embryos hatch following the return of winter rains and cold temperatures (USFWS 2007).

Critical habitat was designated for the species in August 2003, was revised in 2005 and 2006, and clarified in 2007. Primary constituent elements for the vernal pool fairy shrimp include: 1) Vernal pools, swales, and other ephemeral wetlands and depressions of appropriate sizes and depths that hold water for sufficient lengths of time for incubation, reproduction, dispersal,

feeding, and sheltering, but which are dry during the summer, and (2) The landscape features that support aggregations or systems of hydrologically interconnected pools, swales, and other ephemeral wetlands and depressions within a matrix of surrounding uplands which form vernal pool complexes. The Project site does not fall within designated vernal pool fairy shrimp critical habitat. No vernal pools are present within the Project site and the species has no potential to occur.

**San Bruno elfin butterfly (*Callophrys mossii bayensis*)**

**Status: Fed- Endangered State-Special Animal**

The San Bruno elfin butterfly is brown on the upperside, and reddish brown on the underside with a whitish, irregular median line. The larvae are bright red or yellow. The species inhabits rocky outcrops and cliffs in coastal scrub on the San Francisco Peninsula within San Mateo County (USFWS 1984). Remaining populations of San Bruno elfin butterfly are found in only three locations: Milagra Ridge, San Bruno Mountain, and Montara Mountain. The butterfly occurs only on north-facing slopes within the fog belt where its host plant, stonecrop (*Sedum spathulifolium*) is present (USFWS 1984). Stonecrop occurs in coastal grassland and low scrub on thin, rocky soils. Adults emerge in early spring, in February and March. After mating, females deposit eggs on the host plant, which hatch within a week. By June most have completed their larval development and leave the host plant to pupate in ground litter, where they are dormant until the following spring (USFWS 1984).

Final rules for critical habitat for the San Bruno elfin butterfly were proposed in 1977, but critical habitat was not designated. There is no potential for the species in the Project site because the species is restricted to a few locations in San Mateo County. The host plant is not present within the Project site.

**Bridge's coast range shoulderband (*Helminthoglypta nickliniana bridgesii*)**

**Status: Fed-None State-Special Animal**

This terrestrial snail is known from Contra Costa and Alameda counties from Berkeley and San Pablo to the eastern base of Mount Diablo. The species was last reviewed as a candidate for listing by the USFWS in 1994. The snail colonizes thistles or grass and has been found along San Pablo Creek and open west slopes in the Berkeley Hills (Pilsbry 1939). The snail inhabits open hillsides and can be found under rock piles, tall grasses or weeds (Pilsbry 1939). It has also been found in oak woodlands under woody debris or accumulations of leaf litter and in adjacent grasslands in small mammal burrows (Arnold 2016). There are four CNDDDB records of this species within 5 miles of the site and two records within 1-mile of the site. Suitable habitat for this species occurs in the Project site and therefore the species has a high potential to occur (Arnold 2016). This species was not observed during an initial habitat assessment survey for the snail; however, repeated surveys would be necessary to conclude the species absence. The availability of numerous suitable habitat components at the Project site and the Project's proximity to historic occurrences give the species a high potential to occur. The snail is assumed to be present at the Project site.

### **Callippe Silverspot Butterfly (*Speyeria callippe callippe*)**

#### **Status: Fed- Endangered State-Special Animal**

The callippe silverspot is a medium sized butterfly that is found exclusively within grassy hills surrounding San Francisco Bay that support its host plant, Johnny jump-up (*Viola pedunculata*), (USFWS 2009). Its upper wings are brown with extensive black spots and lines and its undersides have distinctive black and bright silver spots. On average adults are observed from mid-May through mid-July. Adult females lay their eggs in dirt and debris near the larval food plant or in surrounding dirt and debris. The species was known historically to occur in grassland habitat in the seven counties bordering San Francisco Bay. The service recognizes two populations of callippe silverspot butterflies located in San Bruno Mountains and Cordelia Hills. The population in Alameda has not been surveyed since 1973 is believed to be extirpated (USFWS 2009).

Critical habitat for the species was not designated because it was determined at the time of listing (1977) that it would not provide additional benefit for the species. The callippe butterfly has no potential to occur within the Project site. Hilly grasslands are present; however, the host plant was not observed during the site assessment. Furthermore, populations within Contra Costa County are believed to be extirpated and there are no known populations known in the East Bay Hills.

#### **4.5 Conservation Plans**

The new tank site will be developed on land covered under the EBMUD Watershed Lands HCP. The plan was adopted in 2008 and is implemented by EBMUD. There are two plant and five animal species covered under the EBMUD Watershed Lands HCP: pallid manzanita, Santa Cruz tarplant, rainbow trout, California red-legged frog, western pond turtle, Alameda whipsnake, and pallid bat.

Habitat for the pallid manzanita, Santa Cruz tarplant and rainbow trout is not present within the Project site. Aquatic habitat for the California red-legged frog and western pond turtle is also not present. There is low probability for dispersal of either species through the Project site due to their distance from pond or riparian habitat and because of the lack of cover.

Pallid bats may be present within the coast live oak woodland where the new road will be constructed; however, the EBMUD Watershed Lands HCP's protection measures solely target the preservation of the nursery colony located in Pinole Valley. A scrub patch identified as core habitat for the Alameda whipsnake under the HCP is located within few hundred feet of the Project site. The EBMUD Watershed Lands HCP mandates that no more than 1% of core habitat may be lost over the 30 year term of the plan. The core scrub habitat area will not be impacted as part of the Project. Avoidance and minimization measures will reduce the likelihood of take to for the pallid bat and Alameda whipsnake.

## 5.0 POTENTIAL IMPACTS

The following section presents potential impacts and recommended measures to avoid or reduce impacts to sensitive habitats and species. For the purposes of this biological resources evaluation, a project is considered to have a significant impact under CEQA if it would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service
- 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
- 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
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

### 5.1 Biological Communities

#### Wetlands, Waters and Riparian Habitat

No wetlands or waters occur on the site. No impacts to wetlands or waters are anticipated as a result of the Project.

#### Sensitive Natural Communities

No sensitive biological communities occur on the site and therefore no impacts to sensitive biological communities are anticipated as a result of the Project. Potential impacts to non-sensitive biological communities are considered less than significant.

#### Wildlife Movement Corridors

The Project site falls within a wildlife movement corridor that is regionally significant. However, the Project is located on the margin of suburban development and is expected to have a negligible impact on the corridor as a whole. The situation and small size of the Project footprint will not substantially interfere with wildlife movement. During construction, animals may temporarily alter their behavior to avoid the area due to increased human disturbance from noise, vibration and traffic. These impacts are expected to be temporary and are less than significant.

## 5.2 Special Status Species

### General Avoidance and Minimization Measures

Implementation of the following general mitigation measures will be taken to avoid harm to multiple species and reduce overall habitat impacts from the Project.

- Prior to Project commencement, all construction personnel should be trained to identify potentially occurring sensitive species. The training should include a description of species, regulatory status, protective measures and work boundaries.
- The outside edges of the construction areas should be delineated with orange barrier safety fencing to prevent encroachment of construction personnel and equipment beyond the approved limits of work.
- Wildlife exclusion fencing constructed of plywood, plastic, aluminum or silt fence material should be installed around the work area. Wildlife exclusion fencing should be buried (minimum 6 inches) to prevent animals passing under the fence and should be high enough (minimum 3 feet) to prevent amphibians, reptiles and small mammals from passing over the fence. Overhanging vegetation should be trimmed. The fencing should be inspected and repaired regularly. The fencing will be removed only when all construction equipment is removed from the Project site.
- A barrier to prevent these species from entering the work site will be placed across access roads into and out of the work site at the end of the day to prevent animal movement into the site overnight.
- An agency approved, qualified biologist will survey the Project site for sensitive and non-sensitive animal species prior to ground disturbance. Non-sensitive species will be relocated outside of the work area. If sensitive species are encountered, the jurisdictional agencies will be contacted to determine the appropriate course of action.
- The qualified biologist will be retained to monitor the construction site to avoid impacts to sensitive species. The biologist will be present at all times during initial ground-disturbing activities. The biologist will be on-call during subsequent construction activities.

### Sensitive Plant Species

No USFWS, CDFW or statewide CNPS listed sensitive botanical resources were observed at the Project site (Parr 2016). However, two plant species considered locally rare by the East Bay Chapter of the CNPS were identified within the Project site during botanical surveys. The California ponysfoot and rayless arnica were discovered during the June 2015 survey. The California ponysfoot was not observed again during follow up surveys conducted in March and May 2016. These plants are situated within the Project foot print where the tanks will be placed and likely cannot be avoided. Grubbing, grading and the movement of equipment may impact these species. Although these plants are considered locally rare and are given consideration under CEQA, they are not afforded official Federal or State protection. The East Bay Chapter of the CNPS will be consulted to determine the appropriate mitigation for these species. Implementation of the following mitigation measures will decrease the potential for impacts.

- A qualified botanist will flag the location of rare plants during pre-construction surveys in all areas where ground disturbance will occur. Sensitive plant species will be avoided where feasible.

- If special status plant species onsite cannot be avoided, the appropriate agencies will be consulted and mitigation measures will be developed. These measures may include harvesting plants or their seeds for relocation to another suitable site or permanently preserving another area with the plant community through a conservation easement.

#### *Nesting Special Status Bird Species*

Avian species that are protected under the Migratory Bird Treaty Act have high potential to nest within the Project site. Disruption of nesting birds could occur as a result of increased human activity (e.g., due to the use of heavy equipment and human traffic) during the breeding season (approximately February through August). Bird species may use trees, shrubs, man-made structures or the ground for nesting habitat. Impacts to potential nesting habitat could occur during construction as a result of tree and shrub removal, ground disturbance, equipment movement, or by direct mortality. Construction activities could disturb nesting avian species and lead to nest abandonment or poor reproductive success. Implementation of the following mitigation measures will decrease the potential for impacts.

- If site clearing, demolition, and construction occur within bird nesting season, preconstruction surveys for nesting birds should be conducted by a qualified biologist to ensure that no nest will be disturbed during Project implementation. This survey shall be conducted no more than 14 days prior to the initiation of demolition/construction activities. During this survey, the biologist will inspect all trees and other habitats in and immediately adjacent to the Project site.
- If an active nest is found sufficiently close to work areas to be disturbed by these activities, the biologist, in consultation with CDFW, will determine the extent of a construction-free buffer zone around the nest. This will ensure that no nests of species protected by the Migratory Bird Treaty Act or State Code will be disturbed during Project implementation.
- The Project biologist should monitor the nest to document breeding and rearing behavior of the adult birds. If it is determined that construction activities are likely to cause nest abandonment, work should cease immediately and the CDFW and/or the USFWS Division of Migratory Bird Management should be contacted for guidance.

#### *Special Status Bat Species*

Roosting and foraging habitat is present for a number of special status bat species. These special status bat species typically use buildings, trees, bridges, and rock crevices for roost habitat. Foraging habitat is present over most of the adjacent habitats. Construction activities may result in the removal or disturbance of hibernation or maternal roost sites, if they are present in the Project site, due to noise or human intrusion. This constitutes a potentially significant impact as it may result in direct mortality and reduction in reproductive success. Because these species are able to travel great distances to forage, however, impacts to foraging habitats are considered less than significant. Implementation of the following mitigation measures will decrease the potential for impacts.

- Construction activities near potential bat roost habitat or removal of potential bat roost habitat should commence between August and March in order to avoid the bat maternity period.

- If this is not feasible, preconstruction bat roost surveys should be done. Pre-construction surveys for potential bat roost habitat shall be performed in all trees and buildings subject to removal or demolition for evidence of bat use (guano accumulation, visual detections).
- If bats are detected within trees or structures that must be removed, humane exclusion of bats from occupied roosts shall be performed in the fall prior to construction. A qualified wildlife biologist must be consulted for humane exclusions or evictions.
- If bat maternity roosts are identified adjacent to the Project site, an appropriate buffer zone will be created and the colony will be monitored by a qualified biologist to make sure they are not disturbed.

#### Alameda whipsnake

Removal of vegetation, earthwork and the operation of heavy equipment at the Project site has potential to cause direct mortality of the Alameda whipsnake. No scrub habitat patches will be impacted by the Project. Implementation of the following mitigation measures will decrease the potential for impacts.

- The Project applicant will consult with the USFWS and CDFW to establish a plan that details reasonable and prudent conservation measures to avoid take of Alameda whipsnake. Obtaining take permits for the species may be recommended by the agencies.
- Initial site clearing (e.g. vegetation removal or grading) should be limited to the period of peak activity of the whipsnake. From the beginning of the mating season in mid-March through the end of October individuals are most likely to be active and can escape harm.
- Exclusion fencing will have one way escape funnels for snake egress and be built to a sufficient height to prevent snake movement over the fence.
- If a whipsnake is detected at any time during construction, all work must immediately cease. Without appropriate permits, individuals may not be handled and must be permitted to move out of the Project site on their own accord. If permits have not been obtained for the Project, work will be suspended until the USFWS and CDFW issue Incidental Take authorization.

#### San Francisco Dusky-Footed Woodrat

No woodrats were detected within the Project site; however, the species has a high potential to occur in the coast live oak woodlands adjacent to the Project site. Road construction could lead to the loss of woodrat nests and the mortality of individuals. Implementation of the following mitigation measures will decrease the potential for impacts.

- A preconstruction survey should be performed prior to any land clearing activities. Any woodrat nests detected should be mapped and flagged for avoidance. If the nest falls within the Project site, the nest should be fenced off so it may be avoided.
- If a woodrat nest is in the Project site and it cannot be avoided, the nest should be disassembled by hand during the non-breeding season by a qualified biologist. The nest materials should be relocated off-site to prevent rebuilding. If occupied nests are within the Project site, CDFW must be contacted. Nests may not be disassembled if adults or young are present.



### Bridge's coast range shoulderband

A habitat assessment for the snail, conducted in January 2016, indicated that suitable habitat is present for the species (Arnold 2016). No snails were discovered during a limited presence-absence survey at the site. However, due to the variety of suitable habitat components present and the proximity of local populations to the site, there is a high probability for the species to occur (Arnold 2016). For these reasons the snail will be presumed present at the project site.

The snail is considered a special animal by CDFW. The species also has a history of being reviewed as a candidate for federal listing. Since the snail is considered a special animal by CDFW, it is given consideration under CEQA. Grubbing, grading and the movement of equipment may cause direct mortality, if the species is encountered at the Project site. Implementation of the following mitigation measures will decrease the potential for impacts.

- Impacts to the scrub and riparian areas adjacent to the site will be avoided. Impacts to the oak woodlands where the access road will originate will be minimized to the extent feasible.
- The construction foot print surrounding the tank and access roads will be minimized to the extent feasible.
- Snail mortalities will be minimized by having a qualified invertebrate biologist relocate snails found within the Project foot print prior to ground disturbance.
- CDFW will be consulted to determine additional appropriate minimization or mitigation measures.

### 5.3 Conservation Plans

Incidental take from the development of new water distribution infrastructure is not covered under the EBMUD Watershed Lands HCP. However, the HCP does not preclude new development on covered lands and the Project does not conflict with the provisions of the HCP.

## 6.0 CONCLUSIONS AND RECOMMENDATIONS

Significant impacts to biological communities, including jurisdictional wetlands or waters, will not occur as a result of the Project. The Project may impact the Siesta Valley wildlife corridor temporarily during construction. The effect of the paved tank foot print encroachment into the corridor is negligible.

No federal or state sensitive botanical resources were observed at the Project site; however, two locally rare plants were found. A qualified botanist will perform pre-construction plant surveys and identify the location of rare plants in the field for avoidance, if feasible. If sensitive plant species cannot be avoided, the appropriate agencies will be consulted to determine if mitigation is required.

Several sensitive bat and bird species have moderate potential to roost or nest within the Project site. Birds and bat species are not expected to be impacted with the incorporation of avoidance and minimization measures. The San Francisco dusky-footed woodrat has high potential to occur within the Project site and may be impacted. Based on a habitat assessment,

the Bridge's Coast Range shoulderband snail has been presume present at the Project Site and may be impacted. Pre-construction surveys will be conducted for wildlife species. If sensitive species are found within the Project site, work will be postponed so that CDFW can be consulted.

The Alameda whipsnake is state and federally listed as threatened and the Project is located within USFWS designated critical habitat. Activities on private lands that do not require Federal permits or funding are not affected by critical habitat designations. However, the ESA prohibits any individual from engaging in unauthorized activities that will harm listed wildlife. It is recommended that USFWS is consulted early in the planning process to determine if obtaining an Incidental Take Permit (ITP) under ESA Section 10, is recommended for the Project. Obtaining an ITP will require the development of an HCP. Coordination with CDFW for state concurrence or to obtain a separate state take permit is also recommended. Without an ITP and CDFW Section 2081 permit, it is not legal to handle or relocate Alameda whipsnakes and all work must immediately cease, in the event the snake is encountered. The detection of the species within the Project site would result in prolonged construction delays while CDFW and USFWS are consulted and the appropriate permits are acquired.

The Project site falls within an area covered by the EBMUD Watershed Lands HCP, but does not conflict with the goals or objectives therein. However, the EBMUD Watershed Lands HCP is limited in scope and does not cover the development of new water infrastructure. Removal of native trees within the oak woodland for the construction of the access road may conflict with local policies and ordinances. EBMUD is exempt from local tree ordinances; however, impacts to mature trees will be avoided to the extent feasible.

Representative photographs of the Project site can be found in Appendix F. Recommendations made in this report were based on the scope of the Project provided and the best information available at the time this assessment was written. Changes in the Project scope or new findings may necessitate the development of additional avoidance, minimization or mitigation measures to reduce negative impacts to biological resources.

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## 8.0 REPORT FIGURES

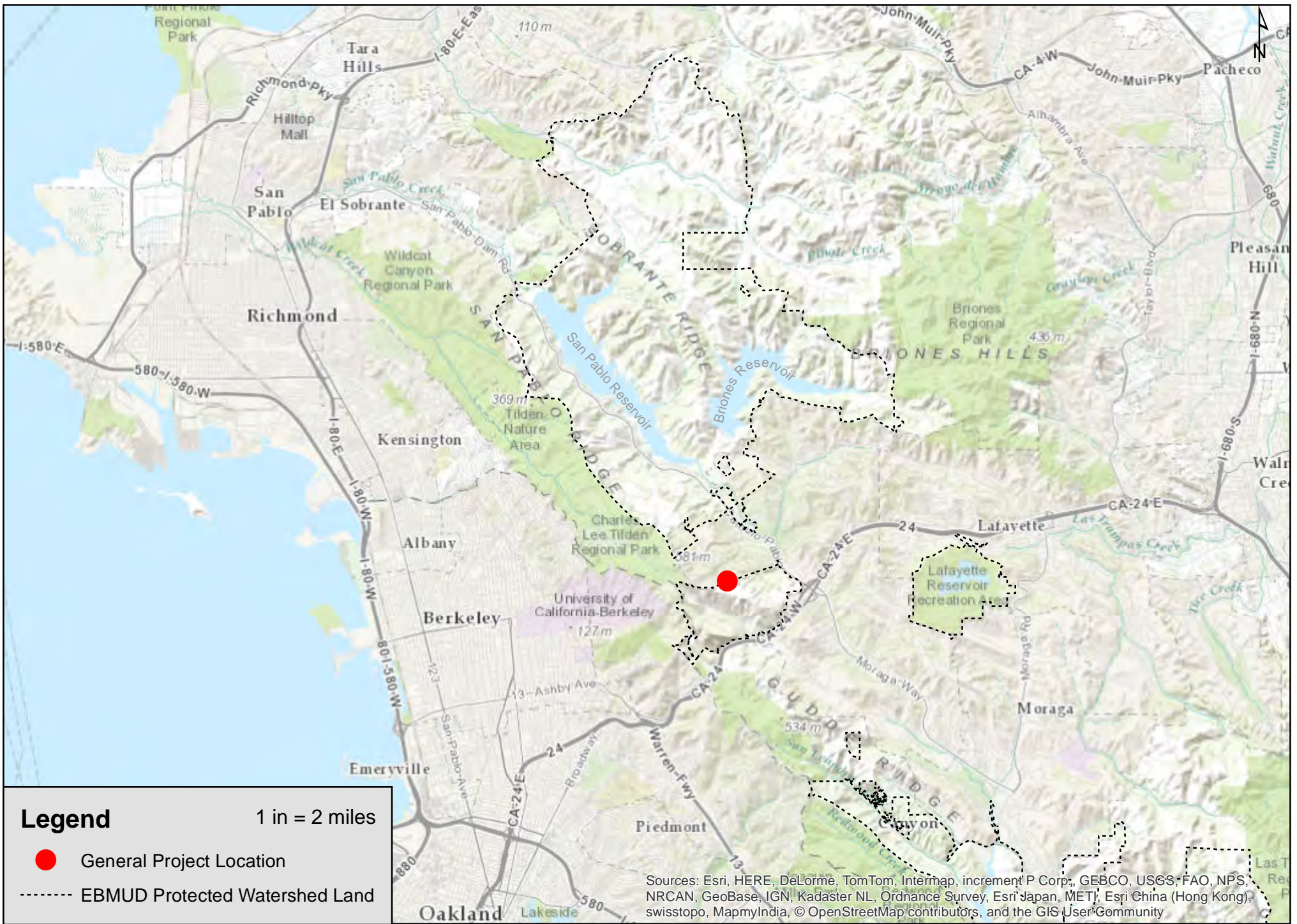


Figure 1. Project Location Overview: Dos Osos Reservoir Replacement



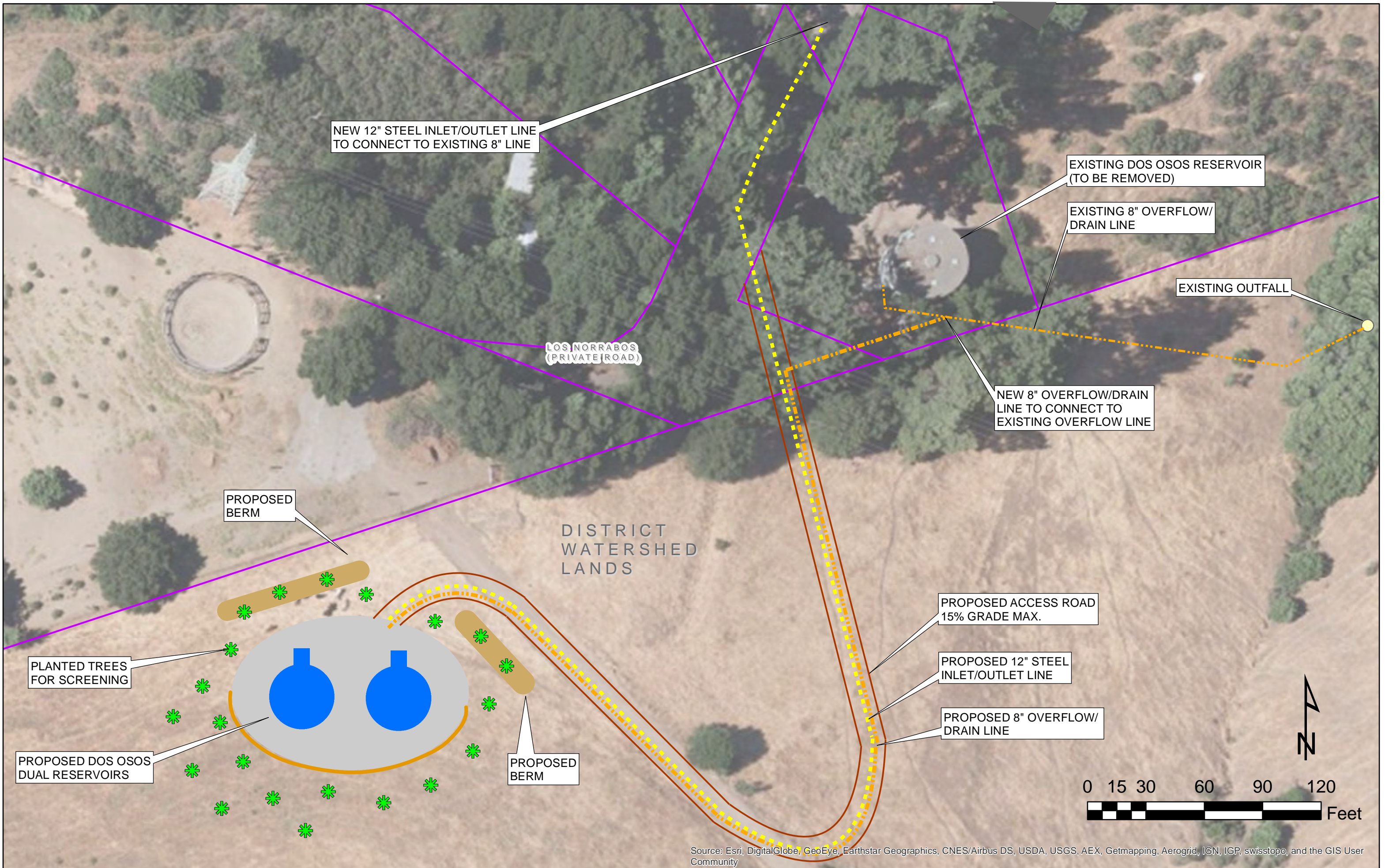


Figure 2. Dos Osos Site Plan

Appendix A:

List of Plant and Animal Species identified within 5 miles of the project site by CDFW in the California Native Diversity Database and by USFWS in the Official Species List for the Dos Osos Reservoir Placement Project

COMMON NAME	SCIENTIFIC NAME	STATUS FED/STATE/CNPS	HABITAT	OCCURRENCE POTENTIAL
Plants				
bent-flowered fiddleneck	<i>Amsinckia lunaris</i>	.../.../1B.2	Cismontane woodland and grassland. Blooms March - June.	No Potential. Known location 0.75 mile away in Siesta Valley. Species not found during botanical surveys.
pallid manzanita	<i>Arctostaphylos pallida</i>	FT/SE/1B.1	Broadleaf upland forest; closed-cone coniferous forest; cismontane woodland, chaparral, coastal scrub; on uplifted marine terraces on siliceous shale or thin chert. Blooms December - March.	No Potential. Suitable soils not present. Species not found during botanical surveys.
alkali milk-vetch	<i>Astragalus tener var. tener</i>	.../.../1B.2	Alkaline soils, playas, valley and foothill grasslands, vernal pools. Blooms March - June.	No Potential. Suitable soils and vernal pools not present. Species not found during botanical surveys.
round-leaved filaree	<i>California macrophylla</i>	.../.../1B.1	Clay soils, cismontane woodland and grassland in clay soils. Blooms March - June.	No Potential. Species not found during botanical surveys.
Mt. Diablo fairy- lantern	<i>Calochortus pulchellus</i>	.../.../1B.2	Chaparral, cismontane woodland, riparian woodland, valley and foothill grassland. Blooms April - June.	No Potential. Species not found during botanical surveys.
Oakland star- tulip	<i>Calochortus umbellatus</i>	.../.../4.2	Serpentine soils, broadleaved upland forest, chaparral, cismontane woodland, lower montane coniferous forest, valley and foothill grassland. Blooms March - May.	No Potential. Known location in oak woodland 0.5 miles east of the project site. Species not found during botanical surveys.
coastal bluff morning-glory	<i>Calystegia purpurata ssp. saxicola</i>	.../.../1B.2	Coastal bluff scrub, coastal dunes, coastal scrub and north coast coniferous forests. Blooms March - September.	No Potential. Species not found during botanical surveys.
Franciscan thistle	<i>Cirsium andrewsii</i>	.../.../1B.2	Coastal bluff scrub, broadleaved upland forest, coastal scrub; sometimes in serpentine seeps. Blooms March - July.	No Potential. Species not found during botanical surveys.
Santa Clara red ribbons	<i>Clarkia concinna ssp. automixa</i>	.../.../4.3	Chaparral and cismontane woodland. Blooms April - July.	No Potential. Species not found during botanical surveys.

COMMON NAME	SCIENTIFIC NAME	STATUS FED/STATE/CNPS	HABITAT	OCCURRENCE POTENTIAL
Plants (cont'd)				
Presidio clarkia	<i>Clarkia franciscana</i>	FE/SE/1B.1	Coastal scrub, grassland; in serpentine outcrops. Blooms May - July.	No Potential. Suitable soils not present. Species not found during botanical surveys.
Point Reyes bird's-beak	<i>Cordylanthus maritimus ssp. palustris</i>	.../.../1B.2	Coastal salt marshes and swamps. Blooms June - October.	No Potential. Suitable wetland habitat not present. Species not found during botanical surveys.
western leatherwood	<i>Dirca occidentalis</i>	.../.../1B.2	Broadleaved upland forest, closed-cone coniferous forest, north coast coniferous forest, riparian woodland, cismontane woodland, chaparral; on brushy, mesic slopes. Blooms January - April.	No Potential. Known location in riparian woodland 0.5 miles west of project site. Species not found during botanical surveys.
Tiburon buckwheat	<i>Eriogonum luteolum var. caninum</i>	.../.../1B.2	Serpentinite, chaparral, cismontane woodland, coastal prairie, valley and foothill grassland. Blooms May - September.	No Potential. Suitable soils not present. Species not found during botanical surveys.
minute pocket moss	<i>Fissidens pauperculus</i>	.../.../1B.2	Moss found in damp coastal soils in north coast coniferous forests.	No Potential. Suitable soils not present. Species not found during botanical surveys.
fragrant fritillary	<i>Fritillaria liliacea</i>	.../.../1B.2	Coastal scrub, grassland, coastal prairie; in various soils, including serpentine but usually clay. Blooms February - April.	No Potential. Species not found during botanical surveys.
Diablo helianthella	<i>Helianthella castanea</i>	.../.../1B.2	Chaparral, cismontane woodland, coastal scrub, grassland; usually in ecotone between chaparral and oak woodland, in partial shade. Blooms March - June.	No Potential. Known location 0.2 miles east of the project site. Species not found during botanical surveys.
Loma Prieta hoita	<i>Hoita strobilina</i>	.../.../1B.1	Chaparral, cismontane woodland, riparian woodland; on mesic, serpentine sites. Blooms May - October	No Potential. Suitable soils not present. Species not found during botanical surveys.
Santa Cruz tarplant	<i>Holocarpha macradenia</i>	FT/SE/1B.1	Coastal prairie, grassland; in sandy or clay soil. Blooms June - October. All wild populations extirpated from Alameda and Contra Costa Counties.	No Potential. All wild populations locally extirpated. Species not found during botanical surveys.

COMMON NAME	SCIENTIFIC NAME	STATUS FED/STATE/CNPS	HABITAT	OCCURRENCE POTENTIAL
Plants (cont'd)				
Oregon meconella	<i>Meconella oregana</i>	.../.../1B.1	Coastal prairie, coastal scrub; on open, moist sites. Blooms March - April.	No Potential. Occurs within 1 mile of project site. Species not found during botanical surveys.
robust monardella	<i>Monardella villosa</i> <i>ssp. globosa</i>	.../.../1B.2	Broadleaved upland forest, cismontane woodland, chaparral, grassland; in openings. Blooms June - July.	No Potential. Species not found during botanical surveys.
woodland woollthreads	<i>Monolopia gracilis</i>	.../.../1B.2	Serpentine soils within openings in broadleaved upland forest, chaparral, cismontane woodland, north coast coniferous forest, valley and foothill grassland. Blooms February - July.	No Potential. Suitable soils not present. Species not found during botanical surveys.
Marin knotweed	<i>Polygonum marinense</i>	.../.../3.1	Annual herb found in salt marshes and swamps. Blooms April - October.	No Potential. Suitable marsh habitat not present. Species not found during botanical surveys.
most beautiful jewel-flower	<i>Streptanthus albidus</i> <i>ssp. peramoenus</i>	.../.../1B.2	Cismontane woodland, chaparral, grassland; in serpentine outcrops on ridges and slopes. Blooms April - June.	No Potential. Suitable soils not present. Known location within 1 mile of project site. Species not found during botanical surveys.
slender-leaved pondweed	<i>Stuckenia filiformis</i> <i>ssp. alpina</i>	.../.../2B.2	Freshwater marshes and swamps. Blooms May - July.	No Potential. Suitable wetland habitat not present. Species not found during botanical surveys.
California seablite	<i>Suaeda californica</i>	FE/.../1B.1	Coastal salt marshes and swamps. Blooms July - October.	No Potential. Suitable marsh habitat not present. Species not found during botanical surveys.
saline clover	<i>Trifolium hydrophilum</i>	.../.../1B.2	Marshes and swamps, valley and foothill grasslands and vernal pools. Blooms April - June.	No Potential. Suitable wetland habitat not present. Species not found during botanical surveys.

COMMON NAME	SCIENTIFIC NAME	STATUS FED/STATE	HABITAT	OCCURRENCE POTENTIAL
Invertebrates				
vernal pool fairy shrimp	<i>Branchinecta lunchi</i>	FT/...	Occur in small depressions in sandstone outcrops surrounded by foothill grasslands, swales, earth slumps, or basalt-flow depression basins with grassy or muddy bottom. Inhabits vernal pools in unplowed grass lands in the Coast Ranges. Active between December and May.	No Potential. Suitable freshwater wetland habitat not present.
San Bruno elfin butterfly	<i>Callophrys mossii bayensis</i>	FE/...	Coastal, mountainous areas with grassy ground cover, mainly in the vicinity of San Bruno Mountain, San Mateo County. Colonies are located on steep, north-facing slopes within the fog belt. The adult flight period is late February to mid-April. Eggs are laid on stonecrop ( <i>Sedum spathulifolium</i> ).	No potential. Suitable habitat not present. Outside of species' historic range. No known occurrences in the East Bay Hills.
monarch butterfly	<i>Danaus plexippus</i>	.../ Wintering locations protected	Overwinter in wind protected tree groves of coastal California conifer, cypress or Eucalyptus. Caterpillars feed almost exclusively on milkweed ( <i>Asclepias sp.</i> ).	Low Potential. Mature trees on site provide marginal winter roost habitat.
bay checkerspot butterfly	<i>Euphydryas editha bayensis</i>	FT/...	Sparse native grassland or scrub in serpentine soils. Larval host plants are California plantain ( <i>Plantago erecta</i> ), indian paintbrush ( <i>Castilleja densiflora</i> ) or purple owl'sclover ( <i>C. exerta</i> ).	Low Potential. Host plant present. No currently known populations in the East Bay Hills.
Bridges' coast range shoulderband	<i>Helminthoglypta nickliniana bridgesi</i>	.../...	Inhabits open hillsides of Alameda and Contra Costa counties. Found under rock piles, under tall grasses or weeds and under riparian woody debris.	Moderate Potential. Open hillsides surrounded by grass and herbaceous vegetation present.
Lee's micro-blind harvestman	<i>Microcina leei</i>	.../...	Found beneath sandstone rocks in xeric open oak grasslands. Only known from two occurrences in the Oakland-Berkeley Hills, near the UC Berkeley campus.	Low Potential. Suitable sandstone rock habitat not present.
callippe silverspot butterfly	<i>Speyeria callippe callippe</i>	FE/...	Grasslands with host plant Johnny jump-up ( <i>Viola pedunculata</i> ). Last remaining populations found in the eastern portions of the San Bruno mountains.	No potential. Host plant not present. No currently known populations in the East Bay Hills.

COMMON NAME	SCIENTIFIC NAME	STATUS FED/STATE	HABITAT	OCCURRENCE POTENTIAL
Fish				
Sacramento perch	<i>Archoplites interruptus</i>	.../CSC	Pools and slow flowing portions of creeks and rivers and with aquatic vegetation, also occurs in lakes and ponds. Occur in Jewel Lake in Tilden Regional Park.	No Potential. Suitable habitat not present.
delta smelt	<i>Hypomesus transpacificus</i>	FT/SE	Tolerant of a wide salinity range, inhabiting bays, tidal rivers and sloughs. For a large part of their one-year life span, delta smelt live along the freshwater edge of the salt/freshwater mixing zone, where the salinity is ~2 ppt. Migrate upstream from the mixing zone to spawn in fresh or slightly brackish water in river channels, tidal backwater sloughs or channel edgewater. Populations were known to concentrate in the lower Delta and upper Suisun Bay after breeding.	No Potential. Suitable habitat not present. Project will not impact downstream habitat.
steelhead (Central California Coast ESU)	<i>Oncorhynchus mykiss irrideus</i>	FT/...	The ESU includes all naturally spawned populations of steelhead in California streams from the Russian River to Aptos Creek, and the drainages of San Francisco and San Pablo Bays eastward to the Napa River.	No Potential. Suitable habitat not present.
Reptiles				
western pond turtle	<i>Emys marmorata</i>	.../CSC	Prefers permanent, slow-moving creeks, streams, ponds, rivers, marshes, and irrigation ditches with protected areas for basking and vegetated shorelines. Uses upland sites for egg deposition.	Low Potential. Suitable habitat not present. Dispersal habitat may be present.
Alameda whipsnake	<i>Masticophis lateralis euryxanthus</i>	FT/ST	Inhabits south-east to south-west facing slopes and ravines where chaparral or coastal scrub form a vegetative mosaic with oak woodlands and grasses. Uses rock outcrops for refugia. Restricted to the coast ranges between San Francisco Bay and Monterey.	High Potential. Suitable habitat present. Within designated critical habitat. Ten occurrences within a one mile radius of the project site.

COMMON NAME	SCIENTIFIC NAME	STATUS FED/STATE	HABITAT	OCCURRENCE POTENTIAL
Amphibians				
California tiger salamander	<i>Ambystoma californiense</i>	FT/ST	Breeds in temporary or semi-permanent pools such as seasonal wetlands, vernal pools, stock ponds or slow-moving streams that do not support predatory fish. Seeks cover in small mammal burrows in grasslands and oak woodlands.	No Potential. Suitable breeding habitat not present and isolated from known populations.
foothill yellow-legged frog	<i>Rana boylei</i>	.../CSC	Inhabits permanent, slow-moving stream courses in the Coast Ranges and Sierra Nevada foothills. These streams usually contain a cobble substrate and a mixture of open canopy riparian vegetation.	No Potential. Suitable habitat not present. Historically occurred in San Pablo Creek. Presumed extirpated within EBMUD lands.
California red-legged frog	<i>Rana draytonii</i>	FT/CSC	Prefers semi-permanent and permanent stream pools, ponds, and creeks with emergent and/or riparian vegetation. Will occupy upland areas during the wet winter months.	Low Potential. Suitable breeding habitat not present.
Birds				
tricolored blackbird	<i>Agelaius tricolor</i>	BCC/CSC	Nests and seeks cover in emergent wetland vegetation, specifically cattails and tules. Forages on ground in croplands, grassy fields, and edges of ponds. Colonial nester.	No Potential. Suitable habitat not present
bell's sparrow	<i>Amphispiza belli belli</i>	BCC/WL	Generally prefers semi-open habitats with evenly spaced shrubs 1-2 m high. Found in dry chaparral and coastal sage scrub in Contra Costa County.	Moderate Potential. Marginal habitat adjacent o project site.
golden eagle	<i>Aquila chrysaetos</i>	BCC/CFP	Found primarily in open hilly or mountainous grasslands and oak savannah. Forages in a variety of habitats including grass lands, chaparral, and oak woodland with abundant mammals. Nests on cliffs, escarpments, and tall trees.	Moderate. Suitable foraging and marginal nesting habitat present.
short-eared owl	<i>Asio flammeus</i>	BCC/CSC	Found in open areas with low vegetation such as annual and perennial grasslands, prairies, dunes, meadows, irrigated lands, and emergent wetlands. Roost by day on ground, on low open perch, under low shrub, or in conifers.	Moderate. Suitable foraging habitat onsite.



COMMON NAME	SCIENTIFIC NAME	STATUS FED/STATE	HABITAT	OCCURRENCE POTENTIAL
Birds (cont'd)				
long-eared owl	<i>Asio otus</i>	.../CSC	Breeds mainly in dense coniferous or mixed woodland, including riparian woodlands. Nests in large used nests of other bird species or squirrel. Forages over open fields and marshes.	Low Potential. Marginal foraging habitat present.
burrowing owl	<i>Athene cunicularia</i>	BCC/CSC	Found in open, dry grasslands, deserts, prairies, farmland and scrublands with low growing vegetation. Occurs in areas with abundant active and abandoned mammal burrows; especially ground squirrels. Occurs in lowlands throughout California.	Low Potential. Marginal habitat present. No small mammal burrows onsite.
ferruginous hawk	<i>Buteo regalis</i>	BCC/WL	Occurs in open grasslands, sagebrush flats, desert scrub, low foothills and surrounding valleys, and fringes of pinyon-juniper habitats. In California, the ferruginous hawk is an uncommon winter resident and migrant at lower elevations in the Coast Ranges.	Moderate. Suitable foraging habitat present.
Swainson's Hawk	<i>Buteo swainsoni</i>	BCC/ST	Forages in grasslands, grain fields or livestock pastures adjacent to nesting habitat. Nests on large trees in open areas. Nests typically in solitary trees, bushes, or in small grove along shelterbelts.	Moderate. Suitable foraging habitat present.
western snowy plover	<i>Charadrius alexandrinus nivosus</i>	FT/CSC	Breed primarily on unvegetated coastal beaches including: sand spits, dunes, open areas around estuaries, and river mouths. In winter, found on many of the beaches used for nesting as well as on beaches where they do not nest such as man-made salt ponds and on estuarine sand and mud flats.	No Potential. Suitable habitat not present.
northern harrier	<i>Circus cyaneus</i>	.../CSC	Nests and forages in grasslands and agricultural fields. Nests on ground in shrubby vegetation, dense grass, or crops such as wheat and barley, often at the edge of marshes.	Low Potential. Suitable foraging habitat not present.

COMMON NAME	SCIENTIFIC NAME	STATUS FED/STATE	HABITAT	OCCURRENCE POTENTIAL
Birds (cont'd)				
olive-sided flycatcher	<i>Contopus cooperi</i>	BCC/CSC	Most often found in montane conifer forests where tall trees overlook canyons, meadows, lakes or other open terrain. Prefer openings with dead standing trees near water, burns and blow downs.	No Potential. Suitable habitat not present.
yellow rail	<i>Coturnicops noveboracensis</i>	BCC/CSC	Found in grain fields in winter and when migrating. Winters in both fresh and brackish marshes and deep grass. Uses many open habitats, from rice paddies to dry hayfields in fall. Breeds in freshwater emergent wetlands, grass or sedge marshes and wet meadows.	No Potential. Suitable habitat not present.
white-tailed kite	<i>Elanus leucurus</i>	.../CFP	Inhabits agricultural areas, low rolling foothills, valley margins with scattered oaks, river floodplains or marshes adjacent to deciduous woodlands. Forages in grasslands and meadows.	Moderate. Suitable foraging habitat present.
peregrine falcon	<i>Falco peregrinus</i>	BCC/CFP	Breeds mostly in woodland, forest, and coastal habitats. Breeds near water on high cliffs or banks and will nest on human-made structures.	Low Potential. Suitable breeding habitat not present.
common yellowthroat	<i>Geothlypis trichas sinuosa</i>	BCC/CSC	Occurs in salt marshes. Nests just above ground or over water, in thick herbaceous vegetation, often at base of shrub or sapling, sometimes higher in weeds or shrubs up to about 1 meter. Found in the Bay Area during migration and winter.	No Potential. Suitable habitat not present.
bald eagle	<i>Haliaeetus leucocephalus</i>	BCC/SE	Found near ocean shorelines, lakes, reservoirs, river systems, and coastal wetlands. Usually found less than 2 km from water that offers foraging opportunities. Foraging habitat consists of large bodies of water or rivers with abundant fish and adjacent perching sites such as snags or large trees.	Moderate. Suitable foraging habitat at San Pablo Reservoir.

COMMON NAME	SCIENTIFIC NAME	STATUS FED/STATE	HABITAT	OCCURRENCE POTENTIAL
Birds (cont'd)				
least bittern	<i>Ixobrychus exilis</i>	BCC/CSC	Occurrences have been associated particularly with cattail vegetated edges along deep, open waters. Breeds in tall emergent vegetation in primarily freshwater marshes. May use coastal brackish marshes with scattered bushes or woody growth.	No Potential. Suitable habitat not present.
loggerhead shrike	<i>Lanius ludovicianus</i>	BCC/CSC	Nests in woodland and scrub habitats at margins of open grasslands. Often uses lookout perches such as fence posts. Found in lowlands and foothills.	Moderate. Suitable foraging habitat onsite and nesting habitat adjacent to project area.
California black rail	<i>Laterallus jamaicensis coturniculus</i>	BCC/ST	Nests in high portions of salt marshes, shallow freshwater marshes, wet meadows, and flooded grassy vegetation. Most breeding areas vegetated by rushes, grasses, or sedges.	No Potential. Suitable habitat not present.
Alameda song sparrow	<i>Melospiza melodia pusillula</i>	BCC/CSC	Inhabits salt marsh habitats with dense vegetation, and uses upland habitats for refugia. Occurs only along the southern and eastern fringes of the San Francisco Bay.	No Potential. Suitable habitat not present.
San Pablo song sparrow	<i>Melospiza melodia samuelis</i>	BCC/CSC	Found in fringe areas where marsh vegetation is limited to edges of dikes, landfills, or other margins of high ground bordering salt or brackish water.	No Potential. Suitable habitat not present
California brown pelican	<i>Pelecanus occidentalis californicus</i>	FD/CFP	Found in estuarine, marine sub-tidal, and marine pelagic waters along the California coast. Nests on coastal islands of small to moderate size. Also uses mudflats, sandy beaches, wharfs, and jetties.	No Potential. Suitable habitat not present
California clapper rail	<i>Rallus longirostris obsoletus</i>	FE/SE	Inhabits tidal salt marshes of the greater San Francisco Bay. Some individuals may use brackish marshes during the spring breeding season.	No Potential. Suitable habitat not present
California least tern	<i>Sternula antillarum</i>	FE/SE	Occur along marine and estuarine shores where small fish are abundant. Nests on sand dunes close to water in loose colonies relatively free of disturbance along the coast from southern California to San Francisco Bay.	No Potential. Suitable habitat not present.

COMMON NAME	SCIENTIFIC NAME	STATUS FED/STATE	HABITAT	OCCURRENCE POTENTIAL
Mammals				
pallid bat	<i>Antrozous pallidus</i>	.../CSC	Open, dry habitats such as deserts, grasslands, and shrub lands with rocky areas for roosting. Roosts in caves, mine tunnels, crevices in rocks, buildings, and trees. Very sensitive to disturbance of roosting sites. Forages in open habitats.	Moderate. Mature trees on site may provide suitable roost habitat.
ring-tailed cat	<i>Bassariscus astutus</i>	.../CFP	Inhabits desert scrub, chaparral, pine-oak and conifer woodland. Usually within 1/2 miles of water. Dens in rock shelter, tree hollow, under tree roots, burrows dug by other animals, remote buildings, and beneath brush piles. Secretive, may be common in areas where seldom observed.	Low Potential. Marginal habitat present.
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	.../CSC	Roosts in caves, mine tunnels, abandoned buildings, and other structures. Inhabits a variety of plant communities including coastal conifer and broad-leaf forests, oak and conifer woodlands, arid grasslands, and deserts. Most commonly associated with mesic sites. Highly sensitive to disturbances.	Low Potential. Suitable roosting habitat present.
Berkeley kangaroo rat	<i>Dipodomys heermanni berkeleyensis</i>	.../...	Known from open grassy hilltops and open spaces in chaparral and blue oak or pine woodlands in Alameda and Contra Costa Counties. Needs fine, deep, well-drained soil for burrowing. Prefers arid or semi-arid habitats with short grasses and open patches of bare ground. Highly adapted to arid conditions and rarely needs to drink water.	Low Potential. Habitat present but species considered extirpated.
silver-haired bat	<i>Lasionycteris noctivagans</i>	.../...	Primarily a coastal & montane forest dweller feeding over streams, ponds & open brushy areas.	Moderate Potential. Mature trees on site may provide suitable roost habitat.
hoary bat	<i>Lasiurus cinereus</i>	.../...	Found throughout California. Habitats suitable for bearing young include all woodlands and forests with medium to large trees and dense foliage.	Moderate Potential. Mature trees on site may provide suitable roost habitat.

COMMON NAME	SCIENTIFIC NAME	STATUS FED/STATE	HABITAT	OCCURRENCE POTENTIAL
Mammals(cont'd)				
dusky footed woodrat	<i>Neotoma fuscipes annectens</i>	.../CSC	Evergreen or live oaks and other dense, thick-leaved trees and shrubs are important habitat components for this species. In riparian areas, highest densities of woodrats and their houses are often encountered in willow thickets with an oak overstory. Middens constructed on the ground or in trees.	High Potential. Suitable habitat present in adjacent oak woodlands and chaparral. No habitat within tank footprint.
big free-tailed bat	<i>Nyctinomops macrotis</i>	.../...	Found in rocky areas in rugged or hilly country including evergreen forest, woodlands, desert scrub, river floodplains, and stream courses in areas of mixed tropical deciduous forest and thorn forests. Roost primarily in crevices near the tops of cliffs, but sometimes are found in buildings, caves, or occasionally tree cavities.	Low Potential. Suitable roost habitat not present.
salt-marsh harvest mouse	<i>Reithrodontomys raviventris</i>	FE/SE	Restricted to saline emergent wetlands of San Francisco Bay and its tributaries. Habitat consists primarily of pickleweed salt and brackish marshes. Builds loose nests. Uses high ground to escape high tides and floods.	No Potential. Suitable habitat not present.
American badger	<i>Taxidea taxus</i>	.../CSC	Inhabits open grass lands, savannas, and mountain meadows near timberline. Requires abundant burrowing mammals, their principal food source, and loose, friable soils. Distributed throughout California.	Low Potential. Grassland habitat present but there are no recent records of occurrence in the project vicinity.

## Appendix B:

List of Plant Species identified in the CNPS Rare or Endangered Plant Inventory,  
*The Rare, Unusual or Significant Plants of Alameda or Contra Counties* and  
EBMUD's Managed Species Database for the Dos Osos Reservoir Replacement  
Project

Table 1. CNPS Rare and Endangered Plant Inventory Query (nine quads surrounding 37122H2)

SCIENTIFIC NAME	COMMON NAME	CNPS RANK
<i>Amsinckia lunaris</i>	bent-flowered fiddleneck	1B.2
<i>Androsace elongata ssp. acuta</i>	California androsace	4.2
<i>Arctostaphylos pallida</i>	pallid manzanita	1B.1
<i>Astragalus tener var. tener</i>	alkali milk-vetch	1B.2
<i>Atriplex coronata var. coronata</i>	crownscale	4.2
<i>Balsamorhiza macrolepis</i>	big-scale balsamroot	1B.2
<i>Blepharizonia plumosa</i>	big tarplant	1B.1
<i>California macrophylla</i>	round-leaved filaree	1B.2
<i>Calochortus pulchellus</i>	Mt. Diablo fairy-lantern	1B.2
<i>Calochortus umbellatus</i>	Oakland star-tulip	4.2
<i>Calystegia purpurata ssp. saxicola</i>	coastal bluff morning-glory	1B.2
<i>Castilleja ambigua var. ambigua</i>	johnny-nip	4.2
<i>Centromadia parryi ssp. congdonii</i>	Congdon's tarplant	1B.1
<i>Chloropyron maritimum ssp. palustre</i>	Point Reyes bird's-beak	1B.2
<i>Chloropyron molle ssp. molle</i>	soft bird's-beak	1B.2
<i>Chorizanthe cuspidata var. cuspidata</i>	San Francisco Bay spineflower	1B.2
<i>Chorizanthe robusta var. robusta</i>	robust spineflower	1B.1
<i>Cicuta maculata var. bolanderi</i>	Bolander's water-hemlock	2B.1
<i>Cirsium andrewsii</i>	Franciscan thistle	1B.2
<i>Clarkia concinna ssp. automixa</i>	Santa Clara red ribbons	4.3
<i>Clarkia franciscana</i>	Presidio clarkia	1B.1
<i>Dirca occidentalis</i>	western leatherwood	1B.2
<i>Eleocharis parvula</i>	small spikerush	4.3
<i>Eriogonum luteolum var. caninum</i>	Tiburon buckwheat	1B.2
<i>Extriplex joaquinana</i>	San Joaquin spearscale	1B.2
<i>Fissidens pauperculus</i>	minute pocket moss	1B.2
<i>Fritillaria liliacea</i>	fragrant fritillary	1B.2
<i>Gilia capitata ssp. chamissonis</i>	blue coast gilia	1B.1
<i>Helianthella castanea</i>	Diablo helianthella	1B.2
<i>Hoita strobilina</i>	Loma Prieta hoita	1B.1
<i>Holocarpha macradenia</i>	Santa Cruz tarplant	1B.1
<i>Horkelia cuneata var. sericea</i>	Kellogg's horkelia	1B.1
<i>Iris longipetala</i>	coast iris	4.2
<i>Isocoma arguta</i>	Carquinez goldenbush	1B.1
<i>Juglans hindsii</i>	Northern California black walnut	1B.1
<i>Juglans californica</i>	Southern California black walnut	4.2
<i>Lasthenia conjugens</i>	Contra Costa goldfields	1B.1

Table 1. Continued

SCIENTIFIC NAME	COMMON NAME	CNPS RANK
<i>Lathyrus jepsonii</i> var. <i>jepsonii</i>	Delta tule pea	1B.2
<i>Leptosiphon acicularis</i>	bristly leptosiphon	4.2
<i>Lilaeopsis masonii</i>	Mason's lilaeopsis	1B.1
<i>Limosella australis</i>	Delta mudwort	2B.1
<i>Meconella oregana</i>	Oregon meconella	1B.1
<i>Micropus amphibolus</i>	Mt. Diablo cottonweed	3.2
<i>Monardella antonina</i> ssp. <i>antonina</i>	San Antonio Hills monardella	3
<i>Monolopia gracilens</i>	woodland woolythreads	1B.2
<i>Navarretia gowenii</i>	Lime Ridge navarretia	1B.1
<i>Plagiobothrys chorisianus</i> var. <i>chorisianus</i>	Choris' popcorn-flower	1B.2
<i>Plagiobothrys diffusus</i>	San Francisco popcorn-flower	1B.1
<i>Polygonum marinense</i>	Marin knotweed	3.1
<i>Ranunculus lobbii</i>	Lobb's aquatic buttercup	4.2
<i>Sanicula maritima</i>	adobe sanicle	1B.1
<i>Senecio aphanactis</i>	chaparral ragwort	2B.2
<i>Streptanthus albidus</i> ssp. <i>peramoenus</i>	most beautiful jewel-flower	1B.2
<i>Stuckenia filiformis</i> ssp. <i>alpina</i>	slender-leaved pondweed	2B.2
<i>Suaeda californica</i>	California seablite	1B.1
<i>Symphyotrichum lentum</i>	Suisun Marsh aster	1B.2
<i>Trifolium hydrophilum</i>	saline clover	1B.2
<i>Viburnum ellipticum</i>	oval-leaved viburnum	2B.3



Table 2. *Rare, Unusual and Significant Plants of Alameda and Contra Costa Counties*, located within the Orinda region. Plants identified in EBMUD' s managed species database within one mile of the Project area are noted.

SCIENTIFIC NAME	COMMON NAME	CNPS RANK	LOCAL LIST	EBMUD DATA
<i>Adiantum aleuticum</i>	Western five finger	NONE	A2	
<i>Agrostis hallii</i>	Hall redbtop	NONE	A2	
<i>Amsinckia lunaris</i>	Bent-flowered fiddleneck	List 1B.2	A2	1 mile
<i>Asarum caudatum</i>	Longtail wild ginger	NONE	A2	
<i>Calochortus umbellatus</i>	Oakland star-tulip	List 4.2	A2	1 mile
<i>Ceanothus thyrsiflorus</i>	Blueblossom	NONE	A2	
<i>Cirsium quercetorum</i>	Alameda County thistle	NONE	A2	
<i>Deschampsia holciformis</i>	California hairgrass	NONE	A2	
<i>Dirca occidentalis</i>	Western leatherwood	List 1B.2	A2	1 mile
<i>Elymus x hansenii</i>	Rye grass	NONE	A2	
<i>Helianthella castanea</i>	Diablo helianthella	List 1B.2	A2	1 mile
<i>Iris douglasiana</i>	Douglas Iris	NONE	A2	
<i>Layia gaillardioides</i>	Woodland layia	NONE	A2	
<i>Layia hieracioides</i>	Tall layia	NONE	A2	1 mile
<i>Lilium pardalinum ssp. pardalinum</i>	Leopard lily	NONE	A2	
<i>Lupinus arboreus</i>	Coastal bush lupine	CAL-IPC	A2	
<i>Meconella oregana</i>	Oregon meconella	List 1B.1	A2	1 mile
<i>Morella californica</i>	California wax myrtle	NONE	A2	
<i>Penstemon heterophyllus var. purdyi</i>	Purdy's foothill penstemon	NONE	A2	
<i>Prunella vulgaris ssp. lanceolata</i>	Mountain Selfheal	NONE	A1	
<i>Psilocarphus chilensis</i>	Round woolly marbles	NONE	A1	
<i>Scutellaria californica</i>	California skullcap	NONE	A2	1 mile
<i>Sidalcea diploscypha</i>	Fringed sidalcea	NONE	A2	
<i>Sisyrinchium californicum</i>	California golden eyed grass	NONE	A1	
<i>Stachys ajugoides var. ajugoides</i>	Ajuga hedge nettle	NONE	A2	

Appendix C:

Results of the Botanical Resources Inventory for the Dos Osos Reservoir  
Replacement Project



July 15, 2016

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## Dos Osos Water Tank Placement

Purchase Order: 482-25812-AX

Project ID: 1010733

Vendor: 10126877

Ms. Jessica Purificato  
East Bay Municipal Utilities District  
500 San Pablo Dam Road  
Orinda, CA 94563

Re: Botanical Resources Survey

Dear Ms. Purificato:

Sapere Environmental, Inc. is providing you with the results of our botanical resources survey for the Dos Osos Water Tank Placement at the Siesta Valley Open Space Preserve.

### **Introduction and Background**

East Bay Municipal Utilities District (EBMUD) proposes to relocate two water distribution tanks onto a grazed grassland area located in the Siesta Valley open space preserve near Orinda, California. Botanical surveys were conducted in the summer of 2015 and the spring of 2016 to determine if sensitive botanical resources could be impacted by access, staging, and construction within the project footprint.

### **Methods**

Biologists conducted a review of sensitive species with the potential to occur within the study area, then determined survey dates which would coincide with the bloom periods of each of these species. Two biologists surveyed the project footprint during each of these periods: June 29, 2015; March 3, 2016; May 27, 2016. Botanical specimens were identified using the *Jepson Manual: Vascular Plants of California* (2012).

### **Results**

No sensitive botanical resources were observed at the Dos Osos study area. A list of the vascular plant species observed is included below.

**Table 1. Plants in the Study Area**

SCIENTIFIC NAME	COMMON NAME	FAMILY	NATIVITY	STATUS
<i>Acaena pinnatifida</i> var. <i>californica</i>	California sheep bur	Rosaceae	Native	NA
<i>Achillea millefolium</i>	white yarrow	Asteraceae	Native	NA
<i>Achyrrachaena mollis</i>	blow wives	Asteraceae	Native	NA
<i>Anagallis arvensis</i>	scarlet pimpernel	Myrsinaceae	Non-Native	NA
<i>Arnica discoidea</i>	rayless arnica	Asteraceae	Native	Ub
<i>Avena barbata</i>	barbed wild oats	Poaceae	Non-Native	Cal-IPC Moderate
<i>Avena fatua</i>	common wild oats	Poaceae	Non-Native	Cal-IPC Moderate
<i>Baccharis pilularis</i>	coyote brush	Asteraceae	Native	NA
<i>Brassica nigra</i>	black mustard	Brassicaceae	Non-Native	Cal-IPC Moderate
<i>Briza maxima</i>	big rattlesnake grass	Poaceae	Non-Native	Cal-IPC Limited
<i>Brodiaea elegans</i>	harvest brodiaea	Themidaceae	Native	NA
<i>Bromus carinatus</i> var. <i>carinatus</i>	California brome	Poaceae	Native	NA
<i>Bromus diandrus</i>	ripgut brome	Poaceae	Non-Native	Cal-IPC Moderate
<i>Bromus hordeaceus</i>	soft chess	Poaceae	Non-Native	Cal-IPC Limited
<i>Calystegia subacaulis</i>	stemless morning glory	Convolvulaceae	Native	NA
<i>Carduus pycnocephalus</i>	Italian thistle	Asteraceae	Non-Native	Cal-IPC Moderate
<i>Chlorogalum pomeridianum</i>	common soap-root	Agavaceae	Native	NA
<i>Cirsium vulgare</i>	bull thistle	Asteraceae	Non-Native	Cal-IPC Moderate
<i>Clarkia rubicunda</i>	ruby chalice clarkia	Onagraceae	Native	w
<i>Conium maculatum</i>	poison hemlock	Apiaceae	Non-Native	Cal-IPC Moderate
<i>Cynosurus echinatus</i>	spiny dogtail grass	Poaceae	Non-Native	Cal-IPC Moderate
<i>Dichondra donelliana</i>	California ponysfoot	Convolvulaceae	Native	Ua1
<i>Distichlis spicata</i>	salt grass	Poaceae	Native	NA
<i>Elymus elymoides</i>	bottlebrush squirreltail	Poaceae	Native	NA
<i>Elymus glaucus</i>	blue wildrye	Poaceae	Native	NA
<i>Elymus triticoides</i>	creeping wildrye	Poaceae	Native	NA
<i>Epilobium brachycarpum</i>	common willow herb	Onagraceae	Native	NA
<i>Erodium botrys</i>	longbeak stork's bill	Geraniaceae	Non-Native	NA
<i>Erodium cicutarium</i>	redstem stork's bill	Geraniaceae	Non-Native	Cal-IPC Limited
<i>Eschscholzia californica</i>	California poppy	Papaveraceae	Native	NA
<i>Festuca myuros</i>	rattail fescue	Poaceae	Non-Native	Cal-IPC Moderate
<i>Festuca perennis</i>	Italian wildrye	Poaceae	Non-Native	Cal-IPC Moderate
<i>Heraclium maximum</i>	cow parsnip	Apiaceae	Native	NA
<i>Hordeum murinum</i>	foxtail barley	Poaceae	Non-Native	Cal-IPC Moderate
<i>Hypochaeris radicata</i>	rough cat's ear	Asteraceae	Non-Native	Cal-IPC Moderate
<i>Leontodon saxatilis</i>	hawkbit	Asteraceae	Non-Native	NA
<i>Lupinus albifrons</i>	silver bush lupine	Fabaceae	Native	NA
<i>Lupinus bicolor</i>	dove lupine	Fabaceae	Native	NA
<i>Lupinus formosus</i>	summer lupine	Fabaceae	Native	NA

SCIENTIFIC NAME	COMMON NAME	FAMILY	NATIVITY	STATUS
<i>Madia sativa</i>	coast tarplant	Asteraceae	Native	NA
<i>Perideridia kelloggii</i>	Kellogg's yampah	Apiaceae	Native	NA
<i>Quercus agrifolia</i>	coast live oak	Fagaceae	Native	NA
<i>Raphanus raphanistrum</i>	jointed charlock	Brassicaceae	Non-Native	NA
<i>Ribes californicum</i>	California gooseberry	Grossulariaceae	Native	NA
<i>Rumex acetosella</i>	sheep sorrel	Polygonaceae	Non-Native	Cal-IPC Moderate
<i>Rumex crispus</i>	curly dock	Polygonaceae	Non-Native	Cal-IPC Limited
<i>Rumex pulcher</i>	fiddle dock	Polygonaceae	Non-Native	NA
<i>Sambucus nigra</i>	blue elderberry	Adoxaceae	Native	NA
<i>Sanicula bipinnatifida</i>	purple sanicle	Apiaceae	Native	NA
<i>Sanicula crassicaulis</i>	Pacific black snakeroot	Apiaceae	Native	NA
<i>Sidalcea malviflora</i> ssp. <i>malviflora</i>	dwarf checkerbloom	Malvaceae	Native	w
<i>Silybum marianum</i>	common milkthistle	Asteraceae	Non-Native	Cal-IPC Limited
<i>Sisyrinchium bellum</i>	common blue-eyed grass	Iridaceae	Native	NA
<i>Spergularia bocconi</i>	Boccone's sand spurry	Caryophyllaceae	Non-Native	NA
<i>Stipa pulchra</i>	purple needlegrass	Poaceae	Native	NA
<i>Symphoricarpos mollis</i>	creeping snowberry	Caprifoliaceae	Native	NA
<i>Symphyotrichum chilense</i>	California aster	Asteraceae	Native	NA
<i>Torilis arvensis</i>	sock destroyer	Apiaceae	Non-Native	Cal-IPC Moderate
<i>Toxicodendron diversilobum</i>	poison oak	Anacardiaceae	Native	NA
<i>Tragopogon porrifolius</i>	purple salsify	Asteraceae	Non-Native	NA
<i>Trifolium fragiferum</i>	strawberry clover	Fabaceae	Non-Native	NA
<i>Trifolium hirtum</i>	rose clover	Fabaceae	Non-Native	Cal-IPC Moderate
<i>Trifolium wildenovii</i>	tomcat clover	Fabaceae	Native	NA
<i>Triteleia laxa</i>	Ithuriel's spear	Themidaceae	Native	NA
<i>Umbellularia californica</i>	California bay laurel	Lauraceae	Native	NA
<i>Vicia sativa</i>	spring vetch	Fabaceae	Non-Native	NA
<i>Vicia villosa</i> ssp. <i>varia</i>	woollypod vetch	Fabaceae	Non-Native	NA
<i>Wyethia angustifolia</i>	narrow-leaf mule's ears	Asteraceae	Native	NA

**KEY TO STATUS CODES****SPECIAL-STATUS SPECIES**

FE	Federally Endangered
FT	Federally Threatened
SE	State Endangered
ST	State Threatened

**CALIFORNIA RARE PLANT RANKING (CRPR)**

1A	Plants Presumed Extinct
1B	Plants Rare, Threatened, or Endangered in California and elsewhere
2A	Plants Presumed Extirpated in California, but common elsewhere
2B	Plants Rare, Threatened, or Endangered in California, but common elsewhere
3	Review List - more information is needed
4	Plants of Limited Distribution (Watch List)

**UNUSUAL AND SIGNIFICANT PLANTS LIST (U)**

- a1 2 known localities or less
- a2 more than 2 localities, but seriously Threatened
- b 3-5 localities, Threatened but not as seriously
- w Diane Lake's Watch List

**CALIFORNIA INVASIVE PLANT COUNCIL RANKINGS (CAL-IPC)**

- High Species which have severe ecological impacts
- Moderate Species which have substantial and apparent (but not severe) ecological impacts
- Limited Species which are invasive, but their ecological impacts are minor statewide

**Conclusion**

Because no sensitive botanical resources were observed at the Dos Osos site, no further recommendations are made at this time.

**References**

Bruce G. Baldwin, Goldman, Douglas H., Keil, David J., Patterson, Robert, Rosatti, Thomas, Wilken, Deiter H., eds. 2012. *The Jepson Manual: Vascular Plants of California*, Second Edition. University of California Press. Berkeley, CA.

Mason, Herbert L. 1957. *A Flora of the Marshes of California*. University of California Press, Berkeley, CA.

Appendix D:

USFWS Official Species List of Threatened and Endangered Species for the Dos  
Osos Reservoir Replacement Project



# United States Department of the Interior



## FISH AND WILDLIFE SERVICE

Sacramento Fish and Wildlife Office

FEDERAL BUILDING, 2800 COTTAGE WAY, ROOM W-2605

SACRAMENTO, CA 95825

PHONE: (916)414-6600 FAX: (916)414-6713

Consultation Code: 08ESMF00-2016-SLI-0046

October 08, 2015

Event Code: 08ESMF00-2016-E-00090

Project Name: Dos Osos Reservoir Replacement

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

### To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, under the jurisdiction of the U.S. Fish and Wildlife Service (Service) that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Please follow the link below to see if your proposed project has the potential to affect other species or their habitats under the jurisdiction of the National Marine Fisheries Service:

[http://www.nwr.noaa.gov/protected\\_species/species\\_list/species\\_lists.html](http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html)

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2)



of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan ([http://www.fws.gov/windenergy/eagle\\_guidance.html](http://www.fws.gov/windenergy/eagle_guidance.html)). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

The table below outlines lead FWS field offices by county and land ownership/project type. Please refer to this table when you are ready to coordinate (including requests for section 7 consultation) with the field office corresponding to your project, and send any documentation regarding your project to that corresponding office. Therefore, the lead FWS field office may not be the office listed above in the letterhead. Please visit our office's website (<http://www.fws.gov/sacramento>) to view a map of office jurisdictions.

### Lead FWS offices by County and Ownership/Program

<b>County</b>	<b>Ownership/Program</b>	<b>Species</b>	<b>Office Lead*</b>
<b>Alameda</b>	Tidal wetlands/marsh adjacent to Bays	Salt marsh species, delta smelt	BDFWO
<b>Alameda</b>	All ownerships but tidal/estuarine	All	SFWO
<b>Alpine</b>	Humboldt Toiyabe National Forest	All	RFWO
<b>Alpine</b>	Lake Tahoe Basin Management Unit	All	RFWO
<b>Alpine</b>	Stanislaus National Forest	All	SFWO
<b>Alpine</b>	El Dorado National Forest	All	SFWO
<b>Colusa</b>	Mendocino National Forest	All	AFWO
<b>Colusa</b>	Other	All	By jurisdiction (see map)
<b>Contra Costa</b>	Legal Delta (Excluding ECCHCP)	All	BDFWO
<b>Contra Costa</b>	Antioch Dunes NWR	All	BDFWO
<b>Contra Costa</b>	Tidal wetlands/marsh adjacent to Bays	Salt marsh species, delta smelt	BDFWO
<b>Contra Costa</b>	All ownerships but tidal/estuarine	All	SFWO

<b>El Dorado</b>	El Dorado National Forest	All	SFWO
<b>El Dorado</b>	LakeTahoe Basin Management Unit		RFWO
<b>Glenn</b>	Mendocino National Forest	All	AFWO
<b>Glenn</b>	Other	All	By jurisdiction (see map)
<b>Lake</b>	Mendocino National Forest	All	AFWO
<b>Lake</b>	Other	All	By jurisdiction (see map)
<b>Lassen</b>	Modoc National Forest	All	KFWO
<b>Lassen</b>	Lassen National Forest	All	SFWO
<b>Lassen</b>	Toiyabe National Forest	All	RFWO
<b>Lassen</b>	BLM Surprise and Eagle Lake Resource Areas	All	RFWO
<b>Lassen</b>	BLM Alturas Resource Area	All	KFWO
<b>Lassen</b>	Lassen Volcanic National Park	All (includes Eagle Lake trout on all ownerships)	SFWO
<b>Lassen</b>	All other ownerships	All	By jurisdiction (see map)

<b>Marin</b>	Tidal wetlands/marsh adjacent to Bays	Salt marsh species, delta smelt	BDFWO
<b>Marin</b>	All ownerships but tidal/estuarine	All	SFWO
<b>Mendocino</b>	Russian River watershed	All	SFWO
<b>Mendocino</b>	All except Russian River watershed	All	AFWO
<b>Napa</b>	All ownerships but tidal/estuarine	All	SFWO
<b>Napa</b>	Tidal wetlands/marsh adjacent to San Pablo Bay	Salt marsh species, delta smelt	BDFWO
<b>Nevada</b>	Humboldt Toiyabe National Forest	All	RFWO
<b>Nevada</b>	All other ownerships	All	By jurisdiction (See map)
<b>Placer</b>	Lake Tahoe Basin Management Unit	All	RFWO
<b>Placer</b>	All other ownerships	All	SFWO
<b>Sacramento</b>	Legal Delta	Delta Smelt	BDFWO
<b>Sacramento</b>	Other	All	By jurisdiction (see map)
<b>San Francisco</b>	Tidal wetlands/marsh adjacent to San Francisco Bay	Salt marsh species, delta smelt	BDFWO

<b>San Francisco</b>	All ownerships but tidal/estuarine	All	SFWO
<b>San Mateo</b>	Tidal wetlands/marsh adjacent to San Francisco Bay	Salt marsh species, delta smelt	BDFWO
<b>San Mateo</b>	All ownerships but tidal/estuarine	All	SFWO
<b>San Joaquin</b>	Legal Delta excluding San Joaquin HCP	All	BDFWO
<b>San Joaquin</b>	Other	All	SFWO
<b>Santa Clara</b>	Tidal wetlands/marsh adjacent to San Francisco Bay	Salt marsh species, delta smelt	BDFWO
<b>Santa Clara</b>	All ownerships but tidal/estuarine	All	SFWO
<b>Shasta</b>	Shasta Trinity National Forest except Hat Creek Ranger District (administered by Lassen National Forest)	All	YFWO
<b>Shasta</b>	Hat Creek Ranger District	All	SFWO
<b>Shasta</b>	Bureau of Reclamation (Central Valley Project)	All	BDFWO
<b>Shasta</b>	Whiskeytown National Recreation Area	All	YFWO
<b>Shasta</b>	BLM Alturas Resource Area	All	KFWO

<b>Shasta</b>	Caltrans	By jurisdiction	SFWO/AFWO
<b>Shasta</b>	Ahjumawi Lava Springs State Park	Shasta crayfish	SFWO
<b>Shasta</b>	All other ownerships	All	By jurisdiction (see map)
<b>Shasta</b>	Natural Resource Damage Assessment, all lands	All	SFWO/BDFWO
<b>Sierra</b>	Humboldt Toiyabe National Forest	All	RFWO
<b>Sierra</b>	All other ownerships	All	SFWO
<b>Solano</b>	Suisun Marsh	All	BDFWO
<b>Solano</b>	Tidal wetlands/marsh adjacent to San Pablo Bay	Salt marsh species, delta smelt	BDFWO
<b>Solano</b>	All ownerships but tidal/estuarine	All	SFWO
<b>Solano</b>	Other	All	By jurisdiction (see map)
<b>Sonoma</b>	Tidal wetlands/marsh adjacent to San Pablo Bay	Salt marsh species, delta smelt	BDFWO
<b>Sonoma</b>	All ownerships but tidal/estuarine	All	SFWO
<b>Tehama</b>	Mendocino National Forest	All	AFWO
	Shasta Trinity National Forest		

<b>Tehama</b>	except Hat Creek Ranger District (administered by Lassen National Forest)	All	YFWO
<b>Tehama</b>	All other ownerships	All	By jurisdiction (see map)
<b>Yolo</b>	Yolo Bypass	All	BDFWO
<b>Yolo</b>	Other	All	By jurisdiction (see map)
<b>All</b>	FERC-ESA	All	By jurisdiction (see map)
<b>All</b>	FERC-ESA	Shasta crayfish	SFWO
<b>All</b>	FERC-Relicensing (non-ESA)	All	BDFWO
<b>*Office Leads:</b>			
<b>AFWO=Arcata Fish and Wildlife Office</b>			
<b>BDFWO=Bay Delta Fish and Wildlife Office</b>			
<b>KFWO=Klamath Falls Fish and Wildlife Office</b>			
<b>RFWO=Reno Fish and Wildlife Office</b>			
<b>YFWO=Yreka Fish and Wildlife Office</b>			

Attachment



United States Department of Interior  
Fish and Wildlife Service

Project name: Dos Osos Reservoir Replacement

## Official Species List

### Provided by:

Sacramento Fish and Wildlife Office  
FEDERAL BUILDING  
2800 COTTAGE WAY, ROOM W-2605  
SACRAMENTO, CA 95825  
(916) 414-6600

**Consultation Code:** 08ESMF00-2016-SLI-0046

**Event Code:** 08ESMF00-2016-E-00090

**Project Type:** WATER SUPPLY / DELIVERY

**Project Name:** Dos Osos Reservoir Replacement

**Project Description:** An existing reservoir tank will be replaced with dual 0.12-MG steel bolted reservoir tanks at a 70 foot higher elevation on an open space parcel approximately 800 feet to the southwest. A new paved access road will be constructed and the old tank will be demolished. The project footprint of the new tanks and access road will be approximately 0.3 acres.

**Please Note:** The FWS office may have modified the Project Name and/or Project Description, so it may be different from what was submitted in your previous request. If the Consultation Code matches, the FWS considers this to be the same project. Contact the office in the 'Provided by' section of your previous Official Species list if you have any questions or concerns.





United States Department of Interior  
Fish and Wildlife Service

Project name: Dos Osos Reservoir Replacement

### Project Location Map:



**Project Coordinates:** MULTIPOLYGON (((-122.20690582998773 37.880209585323975, -122.20810192162574 37.879219831169216, -122.20842048837139 37.879694624458196, -122.20800526929236 37.879860095303755, -122.20815724706648 37.88003732230767, -122.20726311206816 37.880637387921325, -122.20707782998333 37.88058947335135, -122.20690582998773 37.880209585323975)))

**Project Counties:** Contra Costa, CA



United States Department of Interior  
Fish and Wildlife Service

Project name: Dos Osos Reservoir Replacement

## Endangered Species Act Species List

There are a total of 12 threatened or endangered species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Critical habitats listed under the **Has Critical Habitat** column may or may not lie within your project area. See the **Critical habitats within your project area** section further below for critical habitat that lies within your project. Please contact the designated FWS office if you have questions.

Amphibians	Status	Has Critical Habitat	Condition(s)
California red-legged frog ( <i>Rana draytonii</i> ) Population: Entire	Threatened	Final designated	
California tiger Salamander ( <i>Ambystoma californiense</i> ) Population: U.S.A. (Central CA DPS)	Threatened	Final designated	
<b>Birds</b>			
California Clapper rail ( <i>Rallus longirostris obsoletus</i> ) Population: Entire	Endangered		
California Least tern ( <i>Sterna antillarum browni</i> )	Endangered		
<b>Crustaceans</b>			
Vernal Pool fairy shrimp ( <i>Branchinecta lynchi</i> ) Population: Entire	Threatened	Final designated	
<b>Fishes</b>			
Delta smelt ( <i>Hypomesus</i> )	Threatened	Final designated	



United States Department of Interior  
Fish and Wildlife Service

Project name: Dos Osos Reservoir Replacement

<i>transpacificus</i> Population: Entire			
steelhead ( <i>Oncorhynchus (=salmo)</i> <i>mykiss</i> ) Population: Northern California DPS	Threatened	Final designated	
<b>Flowering Plants</b>			
Pallid manzanita ( <i>Arctostaphylos</i> <i>pallida</i> )	Threatened		
Santa Cruz tarplant ( <i>Holocarpha</i> <i>macradenia</i> )	Threatened	Final designated	
<b>Insects</b>			
Callippe Silverspot butterfly ( <i>Speyeria</i> <i>callippe callippe</i> ) Population: Entire	Endangered		
San Bruno Elfin butterfly ( <i>Callophrys</i> <i>mossii bayensis</i> ) Population: Entire	Endangered		
<b>Reptiles</b>			
Alameda whipsnake ( <i>Masticophis</i> <i>lateralis euryxanthus</i> ) Population: Entire	Threatened	Final designated	



United States Department of Interior  
Fish and Wildlife Service

Project name: Dos Osos Reservoir Replacement

## Critical habitats that lie within your project area

The following critical habitats lie fully or partially within your project area.

Reptiles	Critical Habitat Type
Alameda whipsnake ( <i>Masticophis lateralis euryxanthus</i> ) Population: Entire	Final designated

Appendix E:

Habitat Assessment Survey Report on the Bridge's Coast Range Shoulderband  
Snail for the Dos Osos Reservoir Replacement Project

# Entomological Consulting Services, Ltd.

104 Mountain View Court, Pleasant Hill, CA 94523-2188 • (925) 825-3784 • FAX (925) 827-1809  
bugdctr@comcast.net • www.ecsltd.com

22 January 2016

Jessica Purificato, Fish & Wildlife Biologist II  
East Bay Municipal Utility District  
Fisheries and Wildlife Division  
500 San Pablo Dam Road  
Orinda, CA 94563

Re: Dos Osos Reservoir Replacement Project in Orinda, CA  
Habitat Assessment Survey Report on the Bridge's Coast Range Shoulderband Snail

Dear Jessica:

This letter reports the findings of my habitat assessment survey for the Bridge's Coast Range Shoulderband snail at the proposed project site where the existing Dos Osos Reservoir will be replaced. I provide a brief project description, background information on the snail, and describe my habitat assessment survey methods and findings from my site visit conducted on January 21, 2016.

## **Project Setting and Description.**

The existing Dos Osos Reservoir is located north of Eureka Peak, near the terminus of Los Norrabos Road in the El Toyonal neighborhood within the City of Orinda. It is situated on a 0.2-acre, paved footprint bordered by homes to the north and the Siesta Valley Watershed Property of the East Bay Municipal Utility District (EBMUD) to the south. The project site for the replacement reservoirs is located approximately 800 feet southwest (i.e., upslope) of the existing reservoir and is situated within the Siesta Valley. Two replacement reservoirs will be located where there is grazed annual grassland. In addition to the annual grassland this project site is surrounded by nearby areas of Coast Live Oak woodland, Coyote Brush scrub, and riparian woodland habitats.

Since the existing Dos Osos Reservoir is about 60 years old, it is near the end of its useful lifespan. The new, replacement reservoirs will be placed adjacent to each other at a slightly higher elevation (floor elevation 1,399 ft.) than the existing reservoir (floor elevation 1,318 ft.) to improve water distribution system operations of the pressure zone. Excavation and grading will occur to create a pad for the new dual tanks, an access road for their future operation and maintenance, and to bury water utility pipes. Approximately 0.3 to 0.5 acres will be impacted, including the removal of a maximum 20 trees.

## **Background Information.**

*Helminthoglypta nickliniana bridgesii* (Newcomb, 1861) is a terrestrial snail that was described from a specimen collected in San Pablo, Contra Costa County, California. It is a subspecies of *Helminthoglypta nickliniana* (Lea, 1838), a species which is found in the central

Coast Range, from Sonoma County to Fresno County. This subspecies is commonly known as Bridge's Coast Range Shoulderband snail (hereafter "BCRSS").

BCRSS is similar in appearance to the introduced and more familiar Brown Garden Snail (*Helix aspersa*), but rather than having a cloudy-mottled color pattern, it has a golden-brown shell encircled by a neat single dark brown band. Under magnification, the shell surface resembles fine beadwork.

The BCRSS is distinguished from other subspecies of *Helminthoglypta nickliniana* by having a relatively large, depressed-globose shell with an open umbilicus half or less covered by the inner lip of the aperture. The fine sculpture of the shell surface consists of numerous close-set ridges parallel to the lip, which are cut into beads by diverging, diagonal, incised striations. This beaded sculpture is finer than in other subspecies.

In the East Bay region BCRSS ranges widely over the hills of Contra Costa and northern Alameda counties, between Berkeley and San Pablo in the west and the eastern portion of Mount Diablo. Pilsbry (1939) quoted A. G. Smith (a longtime Berkeley resident and malacologist) as saying that it

"ranges over the open hillsides of the west slope of the Berkeley Hills in the suburbs of Berkeley known as Thousand Oaks ... and Kensington .... It is also found along San Pablo Creek, where it apparently gives way to [*Helminthoglypta*] *diabloensis* further into the hills. Also, I have a lot of 4 shells of this subspecies from Perkins Canyon on the east slope of Mt. Diablo."

Additional historical localities based on specimens in museums and other reference collections include: San Pablo Ridge above Wildcat Creek; Point Isabel; near the eastern end of Caldecott Tunnel; Moraga Canyon; Coyote Gulch, Moraga; Marsh Creek Canyon, near Marsh Creek Springs; and Tilden Park (California Natural Diversity Data Base 2016; Buggy Data Base 2016). Several records are located within 5 miles of the proposed new reservoir site (Pilsbry 1939; California Natural Diversity Data Base 2016; Buggy Data Base 2016). Two CNDDDB records are located within one mile of the project site.

Since Pilsbry's writing in 1939, the "open hillsides of the west slope of the Berkeley Hills" are no longer so open, and the habitat available to BCRSS has been greatly reduced through urban and suburban development throughout this portion of its geographic range. Despite these reductions in available habitat, considerable potential habitat remains in East Bay Regional Park District, EBMUD watershed lands, and on private properties.

With respect to habitat, Pilsbry (1939) further quoted A. G. Smith as having "found it in tall grass and weeds, under patches of Canada thistle, and sometimes sparingly in rock piles. Colonies when found are in thistles or grass." Dr. Barry Roth, a malacological consultant, and I have found BCRSS under clumps of wild artichoke in former pasture and under woody debris on

the ground under oaks along a stream in Moraga (approximately 6 mi. south of the Dos Osos Reservoir project site). We have also observed the BCRSS in a tree-shaded (California Bay and Coast Live Oak), steep-banked gully further incised at the bottom by a 6-8 ft. wide stream channel in Danville (about 12.5 mi. southeast of the project site). This location was also characterized by substantial leaf litter and considerable "branch-on-branch" wood.

### **Conservation Status.**

BCRSS was formerly treated as a candidate species for endangered or threatened status by the U.S. Fish & Wildlife Service under the Endangered Species Act of 1973, but was dropped when the candidate categories were redefined and reduced in number. However, due to its limited range and occurrence, the BCRSS is considered a "Special Animal" by the California Department of Fish & Wildlife (CDFW) and is currently monitored by the California Natural Diversity Data Base (CNDDDB). For these reasons, BCRSS is also treated as a "rare species" under the California Environmental Quality Act (CEQA).

### **Survey Methods.**

I visited the project site with you to conduct my habitat assessment surveys on January 21, 2016. We hiked throughout the current reservoir site and the proposed project site and along the route of the proposed access road to view the habitats that characterize the project site and immediately surrounding area and assess their suitability to support the BCRSS.

Due to the presence and close proximity of different habitat types known to support the BCRSS, we also spent some time searching for snails. Our survey methods were standard for terrestrial snail detection: visual search of areas of promising vegetation cover, turning over and examination of downed branches, and checking the undersides of debris and rocks lying on the ground or partially buried in the soil. We also did some probing around tree and shrub roots, especially those that were partially exposed, probing and raking of leaf litter and leaf mold accumulations, and around the bases of known associated plants. These surveys were conducted in all portions of the proposed project site as well as in the nearby riparian habitat.

### **Results and Discussion.**

The grazed annual grassland, Coyote brush scrub, Coast Live Oak woodland, and riparian habitats that occur within the project site or immediately surrounding area are all habitat types known to support the BCRSS. The tank site and access road project areas exhibit animal burrows in the soil where snails may seek shelter, downed branches in various stages of decay, accumulated leaf litter in the wooded habitat, and numerous, widely scattered rocks (cobbles to small boulders in size) on the ground or partially buried in the soil. This combination of features provides a nice variety of habitat conditions known to support the BCRSS. Given the proximity of historical BCRSS records and the suitable habitat conditions at the project site, I would not be surprised to find the snail at this location.



During our limited presence-absence survey for the BCRSS, observed invertebrates included slugs, isopods, and a millipede. No BCRSS were discovered during this survey. Possible explanations for the apparent "absence" of the snail may be that individuals are still hibernating, thus our survey timing may have been too early to detect active individuals, and that numbers are low due to the past four years of drought.

### **Conclusions.**

Even though no individuals of the BCRSS were observed during my limited presence-absence survey, repeated surveys would be necessary to conclusively demonstrate absence of the snail at this project site. Given the presence of suitable habitats at the project site and the nearby known occurrences of the snail, I anticipate that the BCRSS is likely to be observed at the project site with more survey effort. For these reasons I recommend that EBMUD assume that the BCRSS is present at this project site and conclude that construction of the new reservoirs and access road and installation of new pipelines are likely to impact the snail and its habitat.

Potential avoidance, minimization or mitigation measures that can be implemented to reduce project impacts to the snail may include:

- Avoiding impacts to the scrub and riparian habitats adjacent to the project site
- Minimizing impacts to the oak woodland where the new access road will be constructed
- Minimizing ground disturbance to the extent feasible in the grasslands surrounding the tank and access road footprints
- Minimizing snail mortalities by having a qualified invertebrate biologist relocate snails found within the project footprint prior to ground disturbance. Snails may be placed in suitable habitat outside of the exclusion fencing to prevent subsequent ingress to the project site during work activities.
- Performing onsite habitat enhancements or off-site habitat enhancement at EBMUD's conservation bank (if BCRSS is found to occur there) purchasing conservation bank credits to mitigate for habitat loss.

### **References Cited.**

Buggy Data Base. 2016. Data base of special-status and rare invertebrates. Data base maintained by Entomological Consulting Services, Ltd. Pleasant Hill, CA.

California Natural Diversity Data Base. 2016. Data base of special-status and rare species. Maintained by the California Department of Fish & Wildlife. Sacramento, CA.

Pilsbry, H. A. 1939. Land Mollusca of North America (north of Mexico). Academy of Natural Sciences of Philadelphia, Monograph 3, 1(1):I-xvii, 1-573.

**Jessica Purificato, Fish & Wildlife Biologist II**  
**East Bay Municipal Utility District**  
**Dos Osos Reservoir Replacement Project**  
**Habitat Assessment Report for Bridge's Coast Range Shoulderband Snail**  
**Page 5**

If you have any questions about my report, please contact me.

Sincerely,

A handwritten signature in black ink that reads "Richard A. Arnold". The signature is written in a cursive, flowing style.

Richard A. Arnold, Ph.D.  
President

Appendix F:

Photographs of the Dos Osos Reservoir Replacement Project Site



Photo 1. Existing Dos Osos Reservoir facing south



Photo 2. Situation of existing Dos Osos Reservoir within oak/pine woodland facing northeast



Photo 3. Oak woodland riparian area downhill of new tank site, facing east



Photo 4. Location of new dual tanks in grassland, facing west-southwest



Photo 5. Horse arena and access gate to new tank site, facing northeast



Photo 6. Dos Osos Pumping plant located at Westside Reservoir, facing west