BonTerra PSOMAS

Initial Study/ Mitigated Negative Declaration

Santa Anita Stormwater Flood Management and Seismic Strengthening Project County of Los Angeles, California

Prepared for

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APPENDICES

Appendix

LIST OF ACRONYMS AND ABBREVIATIONS

Acronym	Acronym and Abbreviation Description
A	
AAQS	ambient air quality standards
AAM	Annual Arithmetic Mean
AB	Assembly Bill
ABIH	American Board of Industrial Hygiene
afy	acre-feet per year
APE	Area of Potential Effects
AQMD	Air Quality Management District
B	
BMPs	Best Management Practices (or Programs)
C	
C&D	construction and demolition
CalEEMod	California Emissions Estimator Model
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CBC	California Building Code
CCAR	California Climate Action Registry
CDFW	California Department of Fish and Wildlife
CDMG	California Department of Mines and Geology
CEQA	California Environmental Quality Act of 1970
cfs	cubic feet per second
CGS	California Geological Survey
CH_4	methane
CNDDB	California Natural Diversity Data Base
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
CRHR	California Register of Historic Resources
CRPR	California Rare Plant Rank
CSP	Certified Safety Professional
CUP	Conditional Use Permit
CUPA	Certified Unified Program Agency
CWA	Clean Water Act, Federal (1977)
cy	cubic yards

Acronym	Acronym and Abbreviation Description
D	
dB	Decibel
dBA	decibel, A-weighted
dBC	C-weighted decibels
DSOD	Division of Safety of Dams, State of California
DTSC	Department of Toxic Substances Control, State of California
E	
EA	Environmental Assessment (NEPA)
EIR	Environmental Impact Report (CEQA)
F	
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
G	
GHG	Greenhouse Gas
GWP	Global warming potential
H	
HFC	hydrofluorocarbon
HOV	high-occupancy vehicle lane
HP	Horsepower
Hz	Hertz
I	
I	Interstate
IBC	International Building Code
in/sec	Inches per second
IRWMP	Integrated Regional Water Management Plan
IS	Initial Study (CEQA)
K	
km	Kilometer
Kva	Kilovoltamps
L	
LACFCD	Los Angeles County Flood Control District
LACDPW	Los Angeles Department of Public Works, County of
lbs/day	Pounds per day

Acronym	Acronym and Abbreviation Description
LD 831	Larson Davis Laboratories Model 831 integrating sound level meter
LF	Load factor
L_{eq}	average noise level
L_{max}	maximum noise level
L_{min}	minimum noise level
L_{peak}	peak sound level
LOS	Level of Service (traffic flow rating)
LST	Localized significance threshold
M	
MBTA	Migratory Bird Treaty Act
mg/m^3	milligrams per cubic meter
MLD	Most Likely Descendent
MM	mitigation measure
MMRP	Mitigation Monitoring and Reporting Program
MND	Mitigated Negative Declaration (CEQA)
mph	miles per hour
MRZ	Mineral Resource Zone
msl	mean sea level
$MTCO_2e$	metric tons of carbon dioxide equivalent
N	
NAHC	Native American Heritage Commission
NEPA	National Environmental Policy Act (of 1969)
NO_2	nitrogen dioxide
N_2O	nitrous oxide
NOx	oxides of nitrogen (nitric oxide and nitrogen dioxide)
NOI	Notice of Intent (NEPA)
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
O	
O_3	Ozone
OSHA	Occupational Safety and Health Administration
OSM	Office of Surface Mining Reclamation and Enforcement
OWHMP	Oak Woodland Habitat Revegetation/Mitigation Program
P	
P	Public Facilities and Grounds
PDF	Project Design Feature

Acronym	Acronym and Abbreviation Description
PFC	perfluorocarbon
PGA	peak ground acceleration
PM2.5	respirable particulate matter less than 2.5 micrometers in diameter
PM10	respirable particulate matter less than 10 micrometers in diameter
PMF	probable maximum flood
ppv	Peak particle velocity
PRC	Public Resources Code
PRD	Permit Registration Document
PSHA	Probabilistic Seismic Hazard Analysis
R	
RCP	reinforced concrete pipe
R-M	Residential Mountains
RRs	Regulatory Requirements
RRP	Recycling and Reuse Plan
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
S	
SCAG	Southern California Association of Governments
SCCIC	South Central Coastal Information Center
SCS	Soil Conservation Service
SEA	Significant Ecological Area
SF_6	sulfur hexaflouride
SIP	Standard Individual Permit
SO_2	sulfur dioxide
SOx	sulfur oxides
SoCAB	South Coast Air Basin
SPS	Sediment Placement Site
SR	State Route
SUP	Special Use Permit
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
T	
TAC	toxic air contaminant
TIA	Traffic Impact Analysis
TNT	Trinitrotoluene
tpd	Tons per day

Acronym	Acronym and Abbreviation Description
U	
USACE	U.S. Army Corps of Engineers
USBM	U.S. Bureau of Mines
USEPA	U.S. Environmental Protection Agency
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
V	
VHFHSZ	Very High Fire Hazard Severity Zone
Vmax	Maximum allowable peak particle velocity
VOC	volatile organic compounds
Symbols	
$\mu g/m^3$	micrograms per cubic meter

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SECTION 1.0 EXECUTIVE SUMMARY

The California Environmental Quality Act (CEQA) requires that local government agencies, prior to taking action on projects requiring discretionary approval, consider the environmental consequences of such projects. An Initial Study/Mitigated Negative Declaration (IS/MND) is a public document designed to provide the public, responsible/trustee agencies, and other local and State governmental agencies with an analysis of the potential environmental consequences of a project's implementation. This IS/MND has been prepared in accordance with CEQA and the State CEQA Guidelines for the Santa Anita Stormwater Flood Management and Seismic Strengthening Project (Project).

The Los Angeles County Flood Control District (LACFCD), as lead agency, has authorized the preparation of this IS/MND pursuant to CEQA. The IS/MND indicates that, while the Project would have environmental impacts, modifications and/or mitigation measures have been incorporated into the Project to reduce its potentially adverse impacts to levels considered less than significant (State CEQA Guidelines §15070).

This Executive Summary presents a brief overview of the Project; a tabular summary of the potential environmental effects of the Project; and the recommended mitigation program that would reduce potential impacts to a less than significant level. The reader is referred to the full text of this IS/MND and the technical appendices for a complete description and analysis of the potential environmental effects of the Project.

1.1 PROJECT DESCRIPTION SUMMARY

The Project would modify existing flood management and water conservation facilities along the Santa Anita Canyon Watershed, including the Santa Anita Dam, Santa Anita Headworks, Wilderness Park Culvert Crossing, and the Santa Anita Debris Dam. The Project benefits and the contributing LACFCD facility improvements are as follows:

- Reduce flood risk to downstream communities by:
    - Modifying the Santa Anita Dam spillway to safely pass the Probable Maximum Flood
    - Remediating seismic safety issues at the Santa Anita Dam and Debris Dam
- Enhance sustainability of the local water supply and increase recharge to the groundwater basin by over 500 acre-feet per year by:
    - Restoring storage capacity at Santa Anita Debris Dam
    - Rehabilitating the Santa Anita Headworks for more reliable diversion of stormwater runoff to the spreading grounds
    - Modernizing facilities and implementing new monitoring and control systems
- Improve all-weather access to the Arcadia Wilderness Park by constructing a new culvert crossing

1.1.1 PROJECT LOCATION AND SETTING

The Project study area is located within the jurisdictions of the City of Arcadia, the City of Monrovia, a County-owned inholding within the United States Forest Service (USFS) boundary, and property within the USFS Angeles National Forest. The Project site is in the foothills of the San Gabriel Mountains in Los Angeles County, approximately 15 miles northeast of downtown Los Angeles.

The Dam is at the north end of the Project site, located in the Angeles National Forest and accessed via a private road off Chantry Flats Road, approximately 2.5 miles north of the City of Arcadia. The Headworks structure is located approximately 0.5 mile downstream of the Dam on the border of the Angeles National Forest and the City of Arcadia and accessed off Highland Oaks Drive. The Debris Dam is located approximately 0.5 mile downstream of the Headworks in the Cities of Arcadia and Monrovia, and can be accessed via a maintenance road that runs along the Santa Anita Wash.

Surface runoff from the Santa Anita Canyon Watershed drains along natural courses towards the Santa Anita Wash, which runs north-south beginning at the Dam. The purpose of the Dam is to decrease peak flood flow by retaining stormwater and discharging it at controlled release rates. The released flows continue downstream to the Headworks facility, which intercepts the creek flows and allows the flows to continue downstream to the Debris Dam, to be diverted to the Sierra Madre Spreading Grounds, or to be diverted into the Santa Anita Spreading Grounds.

1.1.2 PROJECT COMPONENTS

Dam

The Dam is located within the Angeles National Forest and within the boundary of the City of Monrovia; however, the USFS has jurisdiction over activities at the Dam. The Dam would be structurally altered to accommodate a new spillway with sufficient capacity to pass the probable maximum flood (PMF) of 26,100 cubic feet per second (cfs) in order to reduce the risk of Dam failure from uncontrolled overtopping during major storm events. The proposed improvements to the Dam would not result in changes to the existing maximum water surface elevation restrictions (which are set in place by California Department of Water Resources, Division of Safety of Dams [DSOD]) at a maximum elevation of 1,230 feet above mean sea level (msl); therefore, the reservoir's operational capacity to retain water would not be altered by Project implementation.

The Dam's outdated electrical, mechanical, potable water, and control systems would be upgraded to ensure reliability and to modernize operations, allowing for the integrated control of the facilities to increase water conservation efficiency. The Dam's structural concrete would be repaired to ensure that the concrete meets acceptable standards consistent with the required seismic performance of the Dam. Other ancilliary facilities at the Dam would also be replaced or upgraded, including the secured access gate (including new power poles to supply electricity) and a storage shed/garage. The existing Dam Operator's house would be removed and a helipad would be constructed in its place to provide aerial access to the Dam in the event of an emergency.

The downstream canyon walls and the toe of the Dam would be re-armored with additional reinforced "gunite" or equivalent concrete erosion protection to dissipate the energy from the overtopping water as the flow cascades through the spillway and the orifice spillway or sluiceway. The flow would be directed onto the downstream armoring before flowing into the channel downstream of the Dam. The re-armoring would reinforce the existing armoring that extends approximately 100 feet downstream from the toe of the Dam. The re-armoring would be held in position with tie-back anchors to be drilled and grouted into the bedrock. The tie-ins for the re-armoring may include rock excavation, superficial grading, and subsurface pressure grouting.

Headworks and Wilderness Park Culvert Crossing

Redevelopment of the Headworks would include reconstruction of the small earthen levee to ensure it can withstand flows produced by the 25-year storm event and replacement of the existing tainter gate (used to divert flows) with a new rubber diversion structure. The rubber diversion structure is a pneumatically[1] operated, bottom-hinged, spillway gate system. The majority of the existing Headworks structure would be removed, including the tainter gate, supporting walls, catwalk, and keys. The new facility would extend beyond the width of the current structure by approximately 20 feet into the existing levee in order to house the new rubber diversion structure. The existing earthen levee would be reinforced and built up approximately five feet higher to match the height of the new Headworks structure. The top layer of disturbed soil on the levee would be removed to expose the underlying engineered fill; it would then be recompacted with additional engineered fill to the proposed height. The access road leading to the Headworks would be modified to match the height of the reinforced earthen levee. The improvements would also include a new control house for operating the rubber diversion structure, which would include remote operation capabilities to increase efficiency of water conservation operations.

In addition to the improvements at the Headworks, removal and replacement of the Culvert Crossing to the City of Arcadia's Wilderness Park is needed to ensure that the roadway and crossing can withstand flows generated by a larger storm event. The existing Wilderness Park Culvert Crossing is located approximately 450 feet downstream of the Headworks. The Culvert Crossing includes the concrete slab and corrugated metal culverts, and it would be removed and replaced with a similarly functioning Culvert Crossing structure that is better designed to withstand storm flows. Approximately 30 feet of the channel upstream and downstream of the existing Culvert Crossing structure would be grubbed and graded to accommodate the new structure. In order to accommodate the new Culvert Crossing abutment, three sycamore trees along the eastern shore of the Wash may need to be removed (see Tree Numbers 220, 221, and 222 in Appendix B, see Tree Report). If possible, the design of the Culvert Crossing will not require the removal of the sycamore north of the culvert crossing, potentially through the means of a temporary closure of the access point into the Wilderness Park that is discussed later. However, in order to provide a conservative analysis, this IS/MND assumes these sycamore trees would be removed.

The LACFCD may transplant the root balls of the sycamores to a suitable riparian location and/or utilize the woody debris from the sycamore to enhance habitat value at another nearby location, if determined to be feasible and if approved by the County and other appropriate parties. In addition, new sycamore trees will be planted in the vicinity of any removed existing trees.

The channel immediately downstream of the new Culvert Crossing would be armored with a riprap apron to dissipate water flow energy. The new Culvert Crossing would be approximately ten feet wider than the existing crossing, and it would be built on top of a new abutment with a supporting wing wall. It would be designed with a permanent guard rail and flexible pavement driving surface adequate for emergency vehicles. The elevation of the Culvert Crossing structure would be raised above the existing roadway elevation to accommodate higher flows. Approximately 1,800 square feet of the roadways leading to and from the Culvert Crossing would be repaved and sloped to join the existing grade.

Debris Dam

Remediation of the seismic deficiencies at the Debris Dam would involve a major reconfiguration of the existing structures, including the intake tower, spillway, and embankment. In 1995, following a seismic safety study of the Debris Dam, the DSOD determined that it did not meet standards for

[1] Pnuematic means operated through the use of compressed air or compressed gas.

seismic safety and required the outlet gate to remain open at all times to prevent storage of water above an elevation of 761 feet above msl. Remediating the seismic deficiencies at the Debris Dam would result in DSOD removing the operational restrictions on the facility, thus restoring 119 acre-feet of water conservation capacity. The Debris Dam would also be enlarged by raising the existing spillway 4 feet, which would create 40 acre-feet of additional storage for a total of 159 acre-feet.

The intake tower located in the Debris Dam would be strengthened or replaced due to the inability of the existing tower to resist seismic loading. The intake tower would be connected to the existing diversion to the spillway channel or spreading grounds, which is a 48-inch outlet conduit that would be lined. In addition, portions of the Debris Dam embankment that are subject to potential liquefaction would be reinforced with structural buttressing. The top of the embankment ranges from an elevation of 796 feet above msl at its center to an elevation of 811 feet above msl at the western edge. The improvements would include removal of six non-native deodar cedar trees located at the toe of the downstream side of the embankment, as mandated by DSOD, to ensure the structural integrity of the Debris Dam. A new automated outlet gate and control system would be constructed to modernize operations and ensure compatibility with other Project components.

1.2 ORGANIZATION OF THE IS/MND

This IS/MND is organized into the following sections:

Section 1, Executive Summary: This section provides a summary of the Project description, Project impacts, and mitigation measures (MMs) required to reduce any potentially significant impacts to less than significant levels.

Section 2, Introduction and Environmental Setting: This section provides an introduction to the purpose of an IS/MND; a brief summary of relevant previous CEQA/National Environmental Policy Act (NEPA) documents; an outline of the IS/MND organization; and a description of the Project's location and existing environmental setting.

Section 3, Project Description: This section provides a description of the proposed Project components and the associated short-term construction activities required for implementation. The section discusses the construction schedule and estimated equipment needs, the ongoing operational and maintenance needs, and require Project-related approvals.

Section 4, Environmental Checklist Form and Assessment: The completed CEQA checklist form provides an overview of the potential impacts that may result from Project implementation. The environmental checklist form also includes "mandatory findings of significance", per CEQA requirements. This section contains the analysis of environmental impacts identified in the environmental checklist and identifies mitigation measures to eliminate potential significant effects or reduce them to a less than significant level.

Section 5, Document Preparers and Contributors: This section includes a list of those persons who participated in writing this document.

Section 6, References: This section identifies the references used in preparation of the IS/MND.

1.3 PROJECT-RELATED ACTIONS

The analysis in Section 4.0 of this IS/MND evaluates the impacts associated with Project implementation. The Project Design Features (PDFs) and Regulatory Requirements (RRs) associated with the Project are summarized below. The nature of the Project itself along with

implementation of the PDFs and compliance with RRs would result in the Project having no impact or less than significant impacts on Agriculture and Forest Resources, Air Quality, Cultural Resources, Greenhouse Gas Emissions, Hydrology and Water Quality, Land Use and Planning, Mineral Resources, Population and Housing, Public Services, Recreation, Traffic/Transportation, and Utilities and Service Systems.

The LACFCD will confirm that these PDFs and RRs are included in the Contractor Specifications and bid documents, as appropriate, and verified as part of the Mitigation Monitoring and Reporting Program (MMRP). These PDFs and RRs shall be implemented to the satisfaction of the LACFCD and are listed below.

1.3.1 PROJECT DESIGN FEATURES

PDF AES-1 The material used to re-armor the downstream canyon walls and the toe of the Dam will match the color of the existing armoring.

PDF BIO-1 A Biological Monitor will be on site during vegetation clearing in Project Work Areas (e.g., limits of disturbance). The Biological Monitor will confirm that the limits of Project Work Areas are clearly marked. The Biological Monitor shall provide environmental awareness training to the Contractor; the training will include a discussion of native habitat types, special status species that may occur in the Project Work Areas, direction for what to do if a special status species is observed, and an overview of applicable permit conditions. Prior to construction, the Biological Monitor will conduct a pre-clearing sweep of the Project Work Area and will flush or move wildlife outside the Project Work Area to the extent practicable.

PDF GEO-1 The Project shall be designed and constructed in compliance with the *Standard Specifications For Public Works Construction* (Greenbook), Construction Specifications Institute, and DSOD guidelines for seismic stability to ensure the structural integrity of proposed site improvements against seismic shaking. In case of conflict between two specifications, the stricter specification shall apply.

PDF GEO-2 A detailed geotechnical investigation shall be conducted to assess potential geotechnical issues at the Debris Dam. This investigation shall conform with all applicable County requirements and other pertinent criteria, including DSOD and Greenbook standards. Specific issues to be evaluated in the Project geotechnical investigation shall include seismic-related ground rupture, ground acceleration, and liquefaction, as well as expansive/corrosive soils; other types of soil/geologic instability (including subsidence, oversized materials and excavations); and any other issues deemed appropriate by the LACFCD and/or the Geotechnical Engineer. The geotechnical investigation shall be submitted to the LACFCD for review and approval prior to commencement of construction. All applicable requirements and recommendations identified in the approved geotechnical investigation shall be incorporated into the Project design and/or construction specifications as appropriate.

PDF TRA-1 Heavy-duty diesel truck vehicle (with a Gross Vehicle Weight Rating of 10,000 lbs. or heavier) trips shall be scheduled to avoid school crosswalks at Highland Oaks Elementary School during peak drop-off hours between 8:00 AM to 9:00 AM and pick-up hours between 2:00 PM to 3:00 PM. As required by State Commercial Vehicle Idling Regulations, trucks shall be prohibited from idling for more than 5 minutes if queuing within 100 feet from any residential area.

1.3.2 REGULATORY REQUIREMENTS

RR AQ-1 All construction activities shall be conducted in compliance with South Coast Air Quality Management District Rule 403, Fugitive Dust, for controlling fugitive dust and avoiding nuisance. Compliance with this rule will reduce short-term particulate pollutant emissions. Contractor compliance with Rule 403 requirements shall be mandated in the contractor's specifications.

RR AQ-2 All construction activities shall be conducted in compliance with South Coast Air Quality Management District Rule 402, Nuisance, which states that a Project shall not "discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property".

RR CUL-1 Should archaeological resources be found during ground-disturbing activities for the Project, an Archaeologist shall be hired to first determine whether it is a "unique archaeological resource" pursuant to Section 21083.2(g) of the *California Public Resources Code* (PRC) or a "historical resource" pursuant to Section 15064.5(a) of the State CEQA Guidelines. If the archaeological resource is determined to be a "unique archaeological resource" or a "historical resource", the Archaeologist shall formulate a mitigation plan in consultation with the LACFCD that satisfies the requirements of the above-referenced sections. If the Archaeologist determines that the archaeological resource is not a "unique archaeological resource" or "historical resource", s/he may record the site and submit the recordation form to the California Historic Resources Information System at the South Central Coastal Information Center at California State University, Fullerton.

RR CUL-2 If human remains are encountered during excavation activities, all work shall halt in the immediate vicinity of the discovery and the County Coroner shall be notified (*California Public Resources Code* §5097.98). The Coroner shall determine whether the remains are of forensic interest. If the Coroner, with the aid of the Archaeologist approved by the LACFCD, determines that the remains are prehistoric, s/he will contact the Native American Heritage Commission (NAHC). The NAHC shall be responsible for designating the most likely descendant (MLD), who will be responsible for the ultimate disposition of the remains, as required by Section 7050.5 of the *California Health and Safety Code.* The MLD shall make his/her recommendation within 48 hours of being granted access to the site. The MLD's recommendation shall be followed if feasible, and may include scientific removal and non-destructive analysis of the human remains and any items associated with Native American burials (*California Health and Safety Code* §7050.5). If the landowner rejects the MLD's recommendations, the landowner shall rebury the remains with appropriate dignity on the property in a location that will not be subject to further subsurface disturbance (*California Public Resources Code* §5097.98).

RR HAZ-1 Activities at the Project site shall comply with existing federal, State, and local regulations regarding hazardous material use, storage, disposal, and transport to prevent Project-related risks to public health and safety. All on-site generated waste that meets hazardous waste criteria shall be stored, manifested, transported, and disposed of in accordance with the *California Code of Regulations* (Title 22) and in a manner to the satisfaction of the local Certified Unified Program Agency (CUPA) and the U.S. Forest Service, as applicable.

RR HYD-1 Prior to the start of construction activities, the LACFCD shall file a Permit Registration Document (PRD) with the State Water Resources Control Board (SWRCB) in order to obtain coverage under that National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges Associated with the Construction and Land Disturbance Activities (Order No. 2009-009-DWQ, NPDES No. CAS000002) or the latest approved general permit. This permit is required for construction activities (including demolition, clearing, grading, and excavation) and other land disturbance activities that result in the disturbance of one acre or more of total land area. The PRD consists of a Notice of Intent (NOI); Risk Assessment; Site Map; Storm Water Pollution Prevention Program (SWPPP); annual fee; and a signed certification statement. Pursuant to permit requirements, the Contractor shall develop and incorporate Best Management Practices (BMPs) for reducing or eliminating construction-related pollutants in site runoff.

In addition, during construction, the LACFCD shall comply with the appropriate requirements listed in the adopted Municipal Separate Storm Sewer System (MS4) Permit (Order No. R4-2012-0175, NPDES No. CAS004001), which regulates municipal discharges of stormwater and non-stormwater.

RR HYD -2 Discharges during construction are regulated under SWRCB Order No. 2003-0017-DWQ, "General Waste Discharge Requirements for Dredge and Fill Discharges That Have Received State Water Quality Certification", which requires compliance with all conditions of the Water Quality Certification issued by the Regional Water Quality Control Board (RWQCB). Compliance with the Water Quality Certification issued by the RWQCB would ensure that any discharge from the Project does not conflict with the applicable provisions of Sections 301 (Effluent Limitations), 302 (Water Quality Related Effluent Limitations), 303 (Water Quality Standards and Implementation Plans), 306 (National Standards of Performance), and 307 (Toxic and Pretreatment Effluent Standards) of the Clean Water Act, or any other applicable requirements of State law.

RR USE-1 Prior to commencement of any construction activities at the Dam, the LACFCD shall submit plans to the USFS to obtain written approval for the construction at the Dam in accordance with the existing USFS SUP (Provision Number 3). The application and all supporting technical information shall be completed to the satisfaction of the USFS, which is subject to review in compliance with the National Environmental Policy Act (NEPA).

RR NOI-1 In compliance with the County Code and consistent with the City of Arcadia Municipal Code, Project construction activities at the Dam, Headworks, Wilderness Park Culvert Crossing, and Debris Dam that generate substantial noise, such as the operation of construction equipment and mechanical equipment, shall be limited to the hours of 7:00 AM to 7:00 PM Monday through Saturday.

RR TRA-1 The movement of large equipment on public roadways shall be made in compliance with the Los Angeles County Code (Title 16, Highway), which requires a moving permit and which includes provisions regarding the size of vehicles/equipment; night moves; moving in inclement weather; parking on streets; travel outside peak hours and holidays; over-length, over-height, and over-width requirements; lighting; signs; and restricted routes. Oversized transport vehicles on State highways, if required, would need to obtain a transportation permit from the California Department of Transportation (Caltrans). Oversized transport vehicles on local roadways, if

required, would need to obtain a transportation permit from the Cities of Arcadia and Sierra Madre.

RR TRA-2 The County's general construction requirements require the implementation of temporary traffic control in accordance with the *Standard Specifications for Public Works Construction* (Greenbook), which contains standards for traffic and access (i.e., maintenance of access, traffic control, and notification of emergency personnel). The Contractor shall provide temporary traffic control in accordance with the Greenbook during construction activities.

RR TRA-3 Design, construction, and operation of the helipad at the Santa Anita Dam shall comply with the requirements of all regulatory and oversight agencies including, but not limited to, the FAA, Caltrans, and Los Angeles County Department of Regional Planning Airport Land Use Commission.

RR UTL-1 Construction activities on the Project site shall be conducted in compliance with Chapter 20.87 (Construction and Demolition Debris Recycling and Reuse) of the Los Angeles County Code, which requires at least 50 percent of all Collection and Demolition (C&D) debris, soil, rock, and gravel removed from the Project site to be recycled or reused unless a lower percentage is approved by the Los Angeles County Director of Public Works. A Recycling and Reuse Plan (RRP) must be submitted by the Contractor to the Los Angeles County Department of Public Works, Environmental Programs Division. The RRP must contain a Project description and the estimated total weight of the project C&D debris, with separate estimates for (1) soil, rock, and gravel; (2) other inert materials; and (3) all other project C&D debris. The ordinance also requires that annual progress reports be submitted to the LACFCD for review.

1.3.3 MITIGATION MEASURES

Prior to mitigation, Project implementation would result in potentially significant impacts to Aesthetics, Biological Resources, Geology and Soils, Hazards/Hazardous Materials, and Noise. However, mitigation measures (MMs) have been developed to avoid or reduce these impacts to levels considered less than significant. These MMs would be included in the Contractor Specifications and bid documents, as appropriate, and verified as part of the MMRP. These MMs shall be implemented to the satisfaction of the LACFCD and are listed below in Table 1-1, Mitigation Measures to Avoid Potentially Significant Environmental Impacts, along with the assigned responsibility for implementation and compliance monitoring.

TABLE 1-1
MITIGATION MEASURES TO AVOID
POTENTIALLY SIGNIFICANT ENVIRONMENTAL IMPACTS

Potential Impact	Mitigation Measures	Applicable Project Component	Timing	Responsible Party	Level of Significance After Mitigation
Aesthetics					
Project implementation has the potential to substantially damage scenic resources (removal of sycamore trees).	**MM AES-1:** Any removal of sycamore trees located at the Wilderness Park Culvert Crossing shall be replaced at a minimum 1:1 ratio with a minimum box size of 24 inches, within a 100-foot radius of their original location.	Wilderness Park Culvert Crossing	Within 6 months of the completion of the Culvert Crossing.	LACFCD	Less than significant.
Biological Resources					
Project implementation has the potential to impact sycamore trees, oak trees, and other native trees.	**MM BIO-1:** **A.** Replacement shall occur for the western sycamores (Tree Numbers 220-222) that are removed by construction of the Wilderness Park Culvert Crossing. At a minimum, impacted sycamore trees at the Culvert Crossing shall be replaced at no less than a 1:1 ratio, and the minimum box size of replacement trees shall be 24 inches. The replacement trees shall be incorporated into the Riparian Habitat Mitigation and Monitoring Plan (HMMP), as set forth in MM BIO-5, or a separate Tree HMMP shall be prepared and shall contain the same required components. **B.** The oak tree adjacent to the Wilderness Park Culvert Crossing (Tree Number 219) shall not be removed. This tree shall be protected as described in subsection "C" below. However, the protective fencing for this tree shall be placed at the edge of the canopy to allow for construction to occur immediately outside its canopy. When initial vegetation removal/ground disturbance is occurring within 1.5 times the dripline/root protection zone, the work shall be monitored by a Certified Arborist who shall oversee any removal/cutting of roots necessary and shall determine if trimming of	All Project Components	Prior to the initiation of construction activities	LACFCD	Less than significant.

TABLE 1-1
MITIGATION MEASURES TO AVOID
POTENTIALLY SIGNIFICANT ENVIRONMENTAL IMPACTS

Potential Impact	Mitigation Measures	Applicable Project Component	Timing	Responsible Party	Level of Significance After Mitigation
	the canopy is necessary to protect the health of the tree. The Certified Arborist shall monitor the health of this tree a minimum of once per month during construction of the Wilderness Park Culvert Crossing and once per month for a period of six-months following completion of construction. Photographs shall be taken monthly to compare the overall vigor of the tree over time. The tree shall be considered "impacted" if its health rating declines two or more rating levels as referenced in the Biological Technical Report (Appendix B, see Tree Survey Report). If this occurs, in coordination with CDFW and the City of Arcadia, the tree shall be mitigated at no less than a 1:1 ratio, and the minimum box size of replacement trees shall be 24 inches. If Tree Number 220 is also preserved, protection shall follow the same requirements that are specified herein for Tree Number 219. **C.** To protect native trees adjacent to Project Work Areas, the following shall be implemented within each Project Work Area: • Brightly-colored construction fencing shall be placed around all native trees to be preserved that are located within 50 feet of Project Work Areas. The fencing shall be placed at 1.5 times the dripline/root protection zone (defined as the outer canopy edge, at least 15 feet from the trunk). These areas shall be labeled as "Tree Protection Areas" and shall be regarded as Environmentally Sensitive Areas on construction plans. If an existing access road is				

TABLE 1-1
MITIGATION MEASURES TO AVOID
POTENTIALLY SIGNIFICANT ENVIRONMENTAL IMPACTS

Potential Impact	Mitigation Measures	Applicable Project Component	Timing	Responsible Party	Level of Significance After Mitigation
	within the Tree Protection Area, the Tree Protection Area may be adjusted to allow for access along the existing roadway. • Stockpiling of materials or vehicle operation shall be prohibited within the Tree Protection Areas. If a Tree Protection Area has been adjusted to allow for an existing access road, no stockpiles or materials shall be allowed within 1.5 times the dripline/root protection zone of the native tree. • Limbs of native trees can be pruned if necessary to allow construction equipment access. Small branches (less than three inches diameter) can be trimmed without the supervision of a Certified Arborist if less than ten percent of the total canopy is removed. If larger branches need to be removed or if more than ten percent of the total canopy would be affected, these activities shall be supervised by a Certified Arborist. • Changes to the grade or drainage patterns in the areas surrounding a Tree Protection Area shall be avoided so that excess water does not drain to native trees, unless otherwise approved by a Certified Arborist. • Any activities (e.g., vehicle operation) occurring within a Tree Protection Area shall be coordinated with a Certified Arborist to ensure that				

TABLE 1-1
MITIGATION MEASURES TO AVOID
POTENTIALLY SIGNIFICANT ENVIRONMENTAL IMPACTS

Potential Impact	Mitigation Measures	Applicable Project Component	Timing	Responsible Party	Level of Significance After Mitigation
	activities would not affect the health of the tree(s). If construction would damage or remove any trees, the Certified Arborist shall contact the appropriate jurisdiction(s) to determine mitigation and permitting requirements before the tree is impacted. • An on-site pre-construction field meeting shall be held to inform all construction personnel of tree restrictions prior the initiation of work. **D.** A subset of the 20 native trees located within the increased inundation area shall be monitored for health over the course of 5 years following completion of the Debris Dam construction. A Certified Arborist shall monitor these trees annually each spring following the rainy season for a period of 5 years for signs of any potential negative health effects from flooding (e.g., yellowing leaves, lack of new growth, trunk decay, etc.) using the same health rating scale described to evaluate baseline conditions. Monitoring will distinguish if any changes in health may be from other outside factors. Each monitoring event shall measure and track the dbh of the trees to determine growth patterns, and other trees outside of the future inundation areas shall also be measured to compare growth rates. Photographs shall be taken annually to compare the overall vigor of each tree's crown over time. Monitoring events shall assess whether a tree has been "affected" by determining if a tree's health rating declines two or more rating levels. Any affected trees				

TABLE 1-1
MITIGATION MEASURES TO AVOID
POTENTIALLY SIGNIFICANT ENVIRONMENTAL IMPACTS

Potential Impact	Mitigation Measures	Applicable Project Component	Timing	Responsible Party	Level of Significance After Mitigation
	shall be monitored for a two year period, which may be in addition to the original 5 year monitoring period, to determine if their health condition subsequently improves. If an affected tree shows improvement in the health rating during this two year period, it shall be considered a "recovered" tree and would not require mitigation. If an affected tree's health condition does not improve during this 2-year period, then the tree would be considered "impacted" and would require mitigation. If this occurs, in coordination with CDFW, the tree shall be mitigated at no less than a 1:1 ratio. The replacement trees shall be incorporated into the Riparian HMMP, as set forth in MM BIO-5, or a separate Tree HMMP shall be prepared and shall contain the same required components.				
Project implementation has the potential to impact Pacific pond turtles and two-striped garter snakes.	**MM BIO-2:** At least 7 days prior to the initiation of dewatering/construction at the Dam and Headworks (and Debris Dam if ponded water is present at the time of construction), a five-day/four-night pre-construction trapping for the Pacific pond turtle shall be conducted by a qualified Biologist. Concurrently with the trapping effort, the Biologist shall also visually search for and capture two-striped garter snakes and any other special status species in the Project Work Areas. If any Pacific pond turtles, two-striped garter snakes, or other special status species are captured, they shall be relocated to a suitable site along Santa Anita Wash outside of the construction area. Prior to relocating any of these species, the USFS and the CDFW shall approve the potential relocation site(s) and methods for transferring the turtles/snakes to the relocation sites. Any non-native animal species encountered during pre-construction surveys shall be permanently removed from the reservoir.	Dam, Headworks, and Debris Dam	Prior to the initiation of dewatering/construction activities at the Dam and Headworks	LACFCD	Less than significant.

TABLE 1-1
MITIGATION MEASURES TO AVOID
POTENTIALLY SIGNIFICANT ENVIRONMENTAL IMPACTS

Potential Impact	Mitigation Measures	Applicable Project Component	Timing	Responsible Party	Level of Significance After Mitigation
	Additionally, a qualified Biologist shall be present during the latter stages of dewatering of the reservoir to ensure that no Pacific pond turtles, two-striped garter snakes, or other special status species are stranded. If any of these species are observed during monitoring, they shall be captured by a qualified Biologist (i.e., one with the necessary approvals to handle these species) and released at the approved relocation site. Any non-native animal species encountered during dewatering of the reservoir shall be permanently removed from the reservoir. A Letter Report shall be prepared to document the results of the pre-construction surveys and monitoring; the Report shall be provided to the USFS and the CDFW within 30 days of conclusion of the survey effort.				
Project implementation has the potential to impact nesting birds and raptors.	**MM BIO-3:** The Project shall be conducted in compliance with the conditions set forth in the Migratory Bird Treaty Act (MBTA) and *California Fish and Game Code* with methods approved by USFWS and CDFW to protect active bird/raptor nests. The nature of the Project requires that work would be initiated during the breeding season for nesting birds (March 15–September 15) and nesting raptors (February 1–June 30). The LACFCD, in consultation with a qualified Biologist, may employ bird exclusionary measures (e.g., mylar flagging) prior to the start of bird breeding season to minimize opportunities for birds to nest within established boundaries of the Project. In order to avoid direct impacts on active nests, a pre-construction survey shall be conducted by a qualified Biologist for nesting birds and/or raptors within 3 days prior to clearing of any vegetation or any work near existing structures (i.e., within 50 feet for nesting birds and within 500 feet for nesting raptors). If the Biologist does not find any active nests within or immediately adjacent to the	All Project Components	During the breeding season for nesting birds (March 15–September 15) and nesting raptors (February 1–June 30), surveys shall occur within 7 days prior to clearing of any vegetation or any work near existing structures (i.e., within 50 feet for nesting birds and within 500 feet for nesting raptors)	LACFCD	Less than significant.

TABLE 1-1
MITIGATION MEASURES TO AVOID
POTENTIALLY SIGNIFICANT ENVIRONMENTAL IMPACTS

Potential Impact	Mitigation Measures	Applicable Project Component	Timing	Responsible Party	Level of Significance After Mitigation
	impact area, the vegetation clearing/construction work shall be allowed to proceed. If the Biologist finds an active nest within or immediately adjacent to the construction area and determines that the nest may be impacted or breeding activities substantially disrupted, the Biologist shall delineate an appropriate buffer zone (at a minimum of 25 feet) around the nest depending on the sensitivity of the species and the nature of the construction activity. Any nest found during survey efforts shall be mapped on the construction plans. The active nest shall be protected until nesting activity has ended. To protect any nest site, the following restrictions to construction activities shall be required until nests are no longer active, as determined by a qualified Biologist: (1) clearing limits shall be established within a buffer around any occupied nest (the buffer shall be 25–100 feet for nesting birds and 300–500 feet for nesting raptors), unless otherwise determined by a qualified Biologist and (2) access and surveying shall be restricted within the buffer of any occupied nest, unless otherwise determined by a qualified Biologist. Encroachment into the buffer area around a known nest shall only be allowed if the Biologist determines that the proposed activity would not disturb the nest occupants. Construction can proceed when the qualified Biologist has determined that fledglings have left the nest or the nest has failed.				

TABLE 1-1
MITIGATION MEASURES TO AVOID
POTENTIALLY SIGNIFICANT ENVIRONMENTAL IMPACTS

Potential Impact	Mitigation Measures	Applicable Project Component	Timing	Responsible Party	Level of Significance After Mitigation
Project implementation has the potential to impact bats.	**MM BIO-4:** Water shall be drained or re-routed around Project Work Areas at least one month prior to construction to deter bats from roosting in the vicinity of the Work Areas. If exclusionary measures have not already been installed on all potential roost structures within the Project Work Area, a pre-construction follow-up roosting bat survey (including both day and evening efforts) shall be conducted by a qualified Biologist within two weeks prior to the initiation of construction to ensure that no active day-roosts would be impacted. The day survey will involve inspecting the structures for sign of bat roosting. The evening survey will involve monitoring each potential roost site for evening emergence, conducting exit counts, and acoustic monitoring (from a half an hour before sunset to at least one hour after sunset) near potential roosts. If active bat day-roosts occur within the Project Work Area, bat exclusion devices shall be installed under the supervision of a qualified biologist prior to the start of construction. If active bat day-roosts occur within structures proposed for removal/repair (including gunite repair on hill slopes), then exclusionary measures, such as barriers with one-way doors or permanent exclusion (e.g., caulking or wire mesh), shall be installed under the supervision of a qualified Biologist. If active bat day-roosts occur within trees proposed for removal, then either tree removal shall be conducted between September and November (to avoid the bat maternity and the bat hibernation season), or the tree removal will occur under the supervision of a qualified Biologist and will utilize phased tree trimming. If avoidance of bat hibernation and bat maternity season is not feasible, then exclusionary measures,	All Project Components	Prior to habitat removal during bat hibernation (generally December through February) or the bat maternity season (April through August)	LACFCD	Less than significant.

TABLE 1-1
MITIGATION MEASURES TO AVOID
POTENTIALLY SIGNIFICANT ENVIRONMENTAL IMPACTS

Potential Impact	Mitigation Measures	Applicable Project Component	Timing	Responsible Party	Level of Significance After Mitigation
	such as netting or phased tree trimming, shall be implemented after the evening roost emergence under the supervision of a qualified Biologist. Once bats have been excluded from the trees to be removed, then tree removal can proceed.				
Project implementation has the potential to impact jurisdictional resources.	**MM BIO-5:** Prior to initiation of Project activities, the Los Angeles County Flood Control District (LACFCD) shall obtain all necessary permits for impacts to U.S. Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), and CDFW jurisdictional areas. Mitigation for the loss of jurisdictional resources shall be negotiated with the resource agencies during the regulatory permitting process. Potential mitigation options shall include one or more of the following: (1) payment to a mitigation bank or regional riparian enhancement program (e.g., invasive plant or wildlife species removal) and/or (2) restoration of riparian habitat either on site or off site at a ratio of no less than 1:1, determined through consultation with the above-listed resource agencies. If in-lieu mitigation fees are required, prior to the initiation of any construction-related activities, the LACFCD shall pay the in-lieu mitigation fee to a mitigation bank/enhancement program for the in-kind (equivalent vegetation type and acreage) replacement of impacted jurisdictional resources. If a Restoration Program is required, prior to the initiation of any construction-related activities, LACFCD shall prepare and submit a Riparian Habitat Mitigation and Monitoring Program (HMMP) for USACE and CDFW approval. If a Riparian HMMP is required, it shall contain the following items: **A.** Responsibilities and qualifications of the personnel to implement and supervise the plan. The responsibilities of the Landowner, Specialists, and Maintenance Personnel that	All Project Components	Prior to the initiation of construction activities	LACFCD	Less than significant.

TABLE 1-1
MITIGATION MEASURES TO AVOID
POTENTIALLY SIGNIFICANT ENVIRONMENTAL IMPACTS

Potential Impact	Mitigation Measures	Applicable Project Component	Timing	Responsible Party	Level of Significance After Mitigation
	would supervise and implement the plan shall be specified. **B.** Site selection. The mitigation site shall be determined in coordination with the USACE, CDFW, and RWQCB. The site shall either be located in a dedicated open space area on County land, USFS land, or off-site land shall be purchased. **C.** Seed source. Seeds (or plantings) used shall be from local sources (within ten miles of the Project area) to ensure genetic integrity. **D.** Site preparation and planting implementation. Site preparation shall include (1) protection of existing native species; (2) trash and weed removal; (3) native species salvage and reuse (i.e., duff); (4) soil treatments (i.e., imprinting, decompacting); (5) temporary irrigation installation; (6) erosion-control measures (i.e., rice or willow wattles); (7) seed mix application; and (8) container species planting. **E.** Schedule. A schedule shall be developed which includes planting in late fall and early winter, between October 1 and January 30. **F.** Maintenance Plan/Guidelines. The Maintenance Plan shall include (1) weed control; (2) herbivory control; (3) trash removal; (4) irrigation system maintenance; (5) maintenance training; and (6) replacement planting. **G.** Monitoring plan. The Monitoring Plan shall include (1) qualitative monitoring (i.e., photographs and general observations); (2)				

TABLE 1-1
MITIGATION MEASURES TO AVOID
POTENTIALLY SIGNIFICANT ENVIRONMENTAL IMPACTS

Potential Impact	Mitigation Measures	Applicable Project Component	Timing	Responsible Party	Level of Significance After Mitigation
	quantitative monitoring (i.e., randomly placed transects); (3) performance criteria, as approved by the above-listed resource agencies; (4) monthly reports for the first year and reports quarterly thereafter; and (5) annual reports for five years, which shall be submitted to the resource agencies on an annual basis. The site shall be monitored and maintained for five years to ensure successful establishment of riparian habitat within the restored and created areas. **H.** Long-term preservation. Long-term preservation of the site shall also be outlined in the conceptual Mitigation Plan to ensure the mitigation site is not impacted by future development.				
Geology and Soils					
Project implementation has the potential to expose people to increased risk of loss, injury, or death involving seismic-related ground failure, including liquefaction and landslides.	**See MM HAZ-1.**	All Project Components	Prior to the initiation of construction activities	The LACFCD shall ensure the measure is included in contractor's specifications and shall monitor compliance	Less than significant.

TABLE 1-1
MITIGATION MEASURES TO AVOID
POTENTIALLY SIGNIFICANT ENVIRONMENTAL IMPACTS

Potential Impact	Mitigation Measures	Applicable Project Component	Timing	Responsible Party	Level of Significance After Mitigation
Hazards and Hazardous Materials					
Project implementation has the potential to result in the increased risks of site hazards.	**MM HAZ-1:** Prior to commencement of any construction activities, the LACFCD shall require that the Contractor prepare a Site-Specific Health and Safety Plan for review and approval. The Plan shall be implemented throughout the construction activities. The Site-Specific Health and Safety Plan shall be prepared in accordance with the Occupational Safety and Health Administration's (OSHA's) Safety and Health Regulations for Construction (29 Code of Federal Regulations 1926) and shall include a Site Health and Safety Officer; an Access and Evacuation Plan; identification of site hazards; and response protocols in the event of an earthquake or landslide.	All Project Components	Prior to the initiation of construction activities	The LACFCD shall ensure the measure is included in contractor's specifications and shall monitor compliance	Less than significant.
Project implementation has the potential to result in the increased risks of wildland fires.	**MM HAZ-2:** Prior to commencement of any construction activities, a Fire Protection Plan shall be prepared that includes emergency reporting procedures; emergency notification, evacuation, and/or relocation of all persons on site; procedures for "hot work" operations; management of hazardous materials and removal of combustible debris; maintenance of emergency access roads; identification of exit routes and assembly areas; and identification of fire apparatus. The Fire Protection Plan shall be distributed to involved parties at least two weeks prior to commencement of any construction activities.	All Project Components	Prior to the initiation of construction activities	The USFS, the LACFCD, and the City of Arcadia	Less than significant.

TABLE 1-1
MITIGATION MEASURES TO AVOID
POTENTIALLY SIGNIFICANT ENVIRONMENTAL IMPACTS

Potential Impact	Mitigation Measures	Applicable Project Component	Timing	Responsible Party	Level of Significance After Mitigation
Noise					
Although impacts would not be significant, the Project has the potential to generate construction noise impacts at the Culvert Crossing and the Debris Dam.	**MM NOI-1:** Even though measures set forth in this mitigation are not required to reduce noise to less than significant levels at either the Culvert Crossing or the Debris Dam, these measures will be implemented at these construction sites to further reduce noise impacts. • The construction contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers, consistent with manufacturers' standards. • The construction contractors shall place all stationary construction equipment so that the equipment is as far as feasible from the noise-sensitive receptors and so that emitted noise is directed away from the noise-sensitive receptors. • The construction contractors shall locate equipment staging in areas that will create the greatest distance between staging area noise sources and noise-sensitive receptors during all Project construction. • The construction contractors shall limit haul truck deliveries to the same hours specified for operation of construction equipment.	Culvert Crossing and the Debris Dam	Prior to the initiation of construction activities and during construction activities	The LACFCD shall ensure the measure is included in contractor's specifications and shall monitor compliance	Less than significant.
Although impacts would not be significant, the Project has the potential to generate construction noise impacts at the Culvert Crossing and the Debris Dam.	**MM NOI-2:** Even though measures set forth in this mitigation are not required to reduce noise to less than significant levels at either the Culvert Crossing or the Debris Dam, these measures will be implemented at these construction sites to further reduce noise impacts. At least two weeks before, but not more than one month prior to the start of noise-generating	Culvert Crossing and the Debris Dam	Prior to the initiation of construction activities and during construction activities	The LACFCD shall ensure the measure is included in contractor's specifications and shall monitor compliance	Less than significant.

TABLE 1-1
MITIGATION MEASURES TO AVOID
POTENTIALLY SIGNIFICANT ENVIRONMENTAL IMPACTS

Potential Impact	Mitigation Measures	Applicable Project Component	Timing	Responsible Party	Level of Significance After Mitigation
	construction activities, notification shall be mailed to owners and occupants of all developed land uses within 300 feet of the Culvert Crossing and Debris Dam providing a schedule for major construction activities that will occur through the duration of the construction period. The notification shall include the identification and contact number for a designated Construction Manager that would be available on site to monitor construction activities. Contact information for the Construction Manager shall also be located at the Arcadia City Hall and the Arcadia Police Department. Complaints may be made during construction hours and a response shall be made within one work day. The Construction Manager shall document all complaints and resolutions and shall provide copies to the LACFCD within three working days of the complaint. The Construction Manager, upon observation of excessive noise occurring near adjacent homes or upon receipt of a complaint about excessive noise shall do the following: • Ensure that construction equipment is properly muffled according to industry standards, and • Modify operations to reduce the number of pieces of equipment operating near noise sensitive receptors or operating concurrently, unless the modification would prevent completion of the task, or • Implement corrective or additional noise-attenuation measures considered appropriate to address the complaint, which may include, but are not limited to, noise barriers or noise blankets.				

TABLE 1-1
MITIGATION MEASURES TO AVOID
POTENTIALLY SIGNIFICANT ENVIRONMENTAL IMPACTS

Potential Impact	Mitigation Measures	Applicable Project Component	Timing	Responsible Party	Level of Significance After Mitigation
Project implementation has the potential to generate construction noise impacts.	**MM NOI-3:** Prior to the start of grading or similar heavy equipment operation on the downstream side of the Debris Dam, the County shall erect a temporary noise barrier between the structural buttressing work area and the residences to the southwest. The barrier shall be located along the southwest edge of the site access road, but the horizontal location may be adjusted as necessitated by geographical or topographical constraints or to avoid trees. The barrier shall be 16 feet high and solid from the ground to the top. The barrier shall be plywood of at least 0.75-inch thickness or other material with a noise transmission loss of 22 dBA or more. When equipment is working on the downstream site of the Debris Dam within 50 feet of residences, only one piece of equipment shall be at full power at any time; other equipment shall be shut down or at low idle.	Debris Dam	Prior to the initiation of construction activities	The LACFCD shall ensure the measure is included in contractor's specifications and shall monitor compliance	Less than significant.
Project implementation has the potential to generate vibration noise impacts.	**MM NOI-4:** Large bulldozers and large loaded trucks shall not be operated on the Project site within 140 feet of an occupied residence. Consistent with the County Code, this restriction does not apply to trucks on a public right-of-way.	All Project Components	During construction activities	The LACFCD shall ensure the measure is included in contractor's specifications and shall monitor compliance	Less than significant.

TABLE 1-1
MITIGATION MEASURES TO AVOID
POTENTIALLY SIGNIFICANT ENVIRONMENTAL IMPACTS

Potential Impact	Mitigation Measures	Applicable Project Component	Timing	Responsible Party	Level of Significance After Mitigation
Mandatory Findings of Significance					
Project implementation has the potential to result in environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly, as they relate to Geology and Soils (landslide hazards during construction), Hazards and Hazardous Materials (emergency response and wildfire risk), and Noise.	**See MMs HAZ-1, HAZ-2, and NOI-1 through NOI-4**	All Project Components	Prior to the initiation of construction activities	The LACFCD shall ensure the measure is included in contractor's specifications and shall monitor compliance	Less than significant.

SECTION 2.0 INTRODUCTION AND ENVIRONMENTAL SETTING

2.1 INTRODUCTION

2.1.1 PURPOSE OF THE INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

In accordance with the California Environmental Quality Act (CEQA) (*California Public Resources Code* §21000 et seq.) and the State CEQA Guidelines (*California Code of Regulations,* Title 14, §15000 et seq.), this Initial Study (IS) has been prepared as documentation for a Mitigated Negative Declaration (MND) for the proposed Los Angeles County Flood Control District (LACFCD) Santa Anita Stormwater Flood Management and Seismic Strengthening Project (Project). This IS/MND includes a description of the Project; location of the Project site; evaluation of the potential environmental impacts of Project implementation; and recommended mitigation measures to lessen or avoid impacts on the environment.

Pursuant to Section 15367 of the State CEQA Guidelines, the LACFCD is the Lead Agency for the Project. The Lead Agency is the public agency that has the principal responsibility for carrying out a project and also has the authority to approve the Project and its accompanying environmental documentation. In addition to addressing the potential environmental impacts that would result from the Project, this IS/MND serves as the primary environmental document for future activities associated with the Project, including discretionary approvals requested or required for Project implementation.

The LACFCD, as the Lead Agency, has reviewed and revised, as necessary, all submitted drafts and technical studies and has commissioned the preparation of this IS/MND to reflect its independent judgment, including reliance on applicable LACFCD technical personnel and review of all technical subconsultant reports. Data for this IS/MND was obtained from on-site field observations; discussions with affected agencies; review of available technical studies, reports, guidelines, and data; and review of specialized environmental assessments prepared for the Project. The LACFCD has the authority for Project approval and adoption of this IS/MND.

This IS/MND evaluates the potential environmental impacts of Project implementation; it includes significance determinations from the environmental analyses; it identifies project design features (PDFs) and regulatory requirements (RRs) to be incorporated into the Project; and it sets forth mitigation measures (MMs) that will lessen or avoid potentially significant Project impacts on the environment.

2.1.2 PREVIOUS ENVIRONMENTAL DOCUMENTATION

An Environmental Impact Report (EIR) was prepared in 2009 for structural modifications to the Dam's inlet/outlet works, construction of a new riser, and the corresponding removal and disposal of sediment from the Santa Anita Reservoir. The EIR evaluated the environmental impacts of all the necessary elements to complete the structural modifications, including draining the Santa Anita Reservoir; removing approximately 500,000 cubic yards of sediment and debris from the reservoir by dry excavation; transporting the sediment from the reservoir via conveyor belt system; and placing it in the Santa Anita Sediment Placement Site (SPS). (LACDPW 2009).

A corresponding Environmental Assessment (EA) was prepared pursuant to the National Environmental Policy Act (NEPA) in 2008. The EA was used by the U.S. Army Corps of Engineers (USACE) to issue a permit pursuant to Section 404 of the Clean Water Act of 1972 (United States Code, Title 33, §1344) (USACE 2008).

2.1.3 PROJECT APPROVAL

The IS/MND has been submitted to potentially affected agencies. A Notice of Intent to Adopt an MND (NOI) was mailed to affected agencies and interested organizations and individuals, and is on file at the Los Angeles County Registrar-Recorder/County Clerk in the City of Norwalk. A summary of the NOI was published in the *Los Angeles Times,* the *San Gabriel Valley Tribune,* and the *Arcadia Weekly* to announce the public review period. The IS/MND and associated technical reports are available online at www.dpw.lacounty.gov/wrd/Projects/SantaAnita. Hard copies are available for public review during business hours at the LACDPW Headquarters (900 South Fremont Avenue, 2nd Floor in Alhambra, California) and at the Arcadia Public Library, located at 20 West Duarte Road in Arcadia, California during business hours.

In accordance with Section 15073 of the State CEQA Guidelines, a Mitigated Negative Declaration must be subject to a 30-day public review period when submitted to the State Clearinghouse for review by State agencies. However, the LACFCD has voluntarily established a 45-day public review period for this IS/MND, beginning on Monday, October 20, 2014, and extending through Thursday, December 4, 2014. In reviewing the IS/MND, the reviewer should focus on the sufficiency of the document in identifying and analyzing the potential impacts on the environment and ways in which the potentially significant effects of the Project are avoided or mitigated. Comments or questions on this IS/MND, postmarked by 5:00 PM on Thursday, December 4, 2014, can be sent in writing by mail to LACFCD at the address below, via email to damprojects@dpw.lacounty.gov, or by fax to (626) 979-5436. Include "Santa Anita Stormwater Flood Management and Seismic Strengthening Project" in the subject line. Comments can also be mailed to the following address:

Los Angeles County Flood Control District
Water Resources Division
900 South Fremont Avenue
Alhambra, California 91803-1331
Attn: Santa Anita Stormwater Flood Management and Seismic Strengthening Project

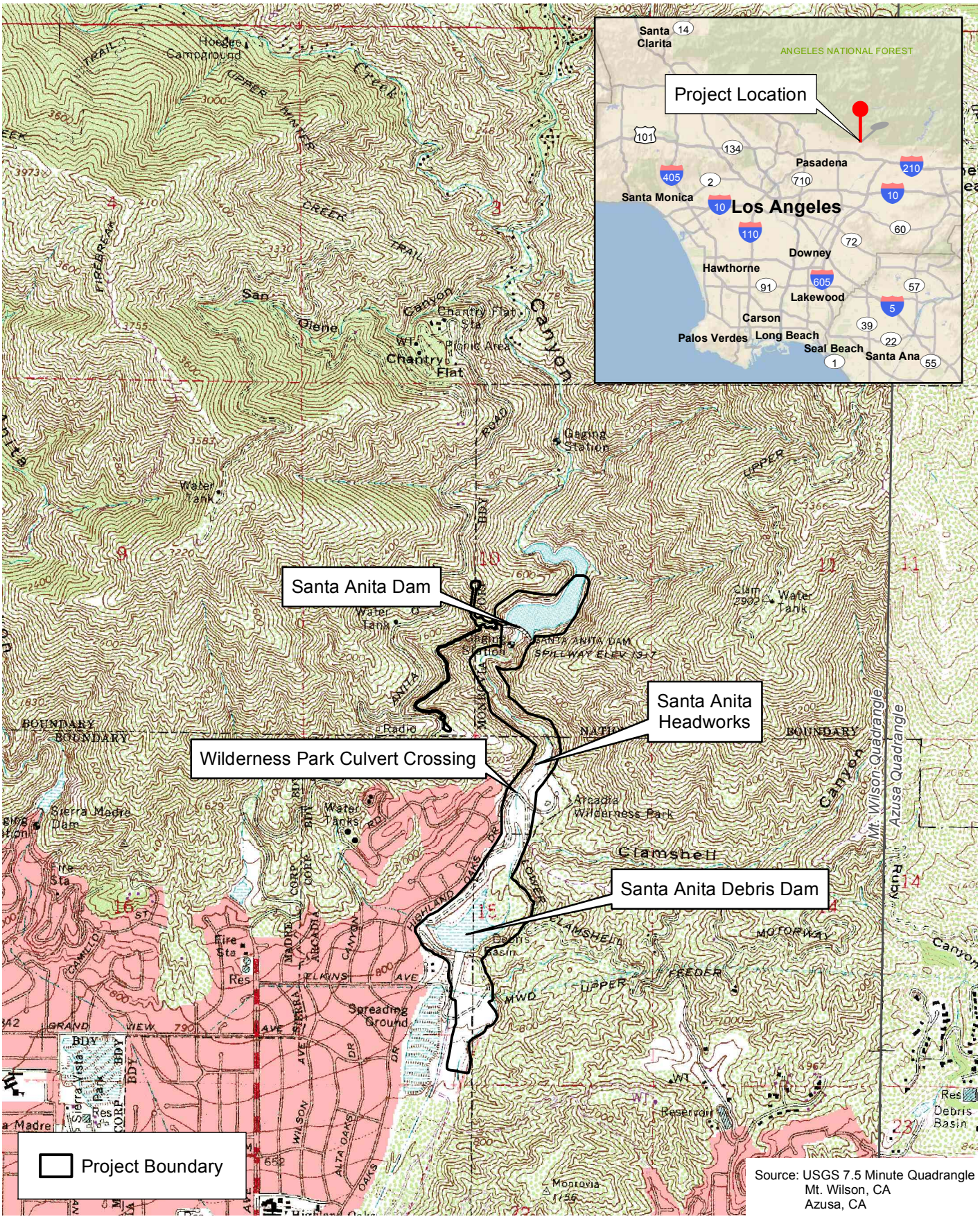
In accordance with Section 15074 of the State CEQA Guidelines, prior to approving the Project, the Los Angeles County Board of Supervisors (Board), acting as governing body of the LACFCD, will consider the proposed IS/MND together with any comments received during the public review process. The Board will adopt the proposed MND only if it finds that that there is no substantial evidence that the Project will have a significant effect on the environment and that the MND reflects the independent judgment and analysis of the Board.

2.2 ENVIRONMENTAL SETTING

The Project involves improvements to three existing flood management and water conservation facilities along the Santa Anita Canyon Watershed: the Dam, the Headworks, and the Debris Dam. This section presents a brief overview of the existing conditions within and surrounding the Project site, as well as the Project need and background. The information provided in this section is used as the "baseline" condition from which Project-related impacts are assessed.

2.2.1 PROJECT LOCATION

The Project is located within the jurisdictions of the City of Arcadia, the City of Monrovia, and the United States Forest Service (USFS). The Project site is in the foothills of the San Gabriel Mountains in Los Angeles County, approximately 15 miles northeast of downtown Los Angeles, as depicted in Exhibit 2-1, Regional Location and Local Vicinity. Primary access to the Project site is via the Santa Anita Avenue exit from Interstate (I) 210.



Source: USGS 7.5 Minute Quadrangle
Mt. Wilson, CA
Azusa, CA

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Regional Location and Local Vicinity Map

Exhibit 2-1

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

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(Rev: 10-08-2014 JAZ) H:\PAS\Projects\CoLADPW\J166\Graphics\MND\Ex2-1_LV_usgs.pdf

Exhibit 2-1 also shows the existing locations of the various Project components, which are located within Santa Anita Canyon. The Dam is at the north end of the Project site, located in the Angeles National Forest and accessed via a private road off Chantry Flats Road, approximately 2.5 miles north of the City of Arcadia. The Headworks structure is located approximately 0.5 mile downstream of the Dam on the border of the Angeles National Forest and the City of Arcadia and accessed off Highland Oaks Drive. The Debris Dam is located approximately 0.5 mile downstream of the Headworks in the Cities of Arcadia and Monrovia, and can be accessed via a maintenance road that runs along the Santa Anita Wash.

2.2.2 PROJECT BACKGROUND AND NEED

The Project would modify three existing flood management and water conservation facilities along the Santa Anita Canyon Watershed: the Dam, the Headworks, and the Debris Dam. These facilities, which are described in further detail below, are operated and maintained by the LACFCD and serve to control and conserve the stormwaters of the Santa Anita Canyon Watershed.

The Project would improve the LACFCD's facilities to better manage stormwater runoff from the Santa Anita Canyon Watershed, including 518 acre-feet of additional water conservation capacity; improve public safety by addressing seismic safety and other structural issues at the Dam, Headworks, and Debris Dam; and prevent flood damage to downstream communities. The Project would be partially funded by a State of California Proposition 1E Stormwater Flood Management Grant and would also be funded by assistance from the City of Arcadia, the City of Sierra Madre, and the Raymond Basin Management Board.

In addition to improving infrastructure for flood protection, the Project would contribute to regional efforts to reduce dependence on imported water supplies by providing increased opportunities to infiltrate storm flows emanating from the Santa Anita Canyon Watershed into the groundwater basin. The Metropolitan Water District of Southern California has estimated that Southern California could face a potential gap between water demand and supply of up to 1,300,000 acre-feet per year (afy) by the year 2025 if new water supply projects are not developed (LACFCD 2011).

The Greater Los Angeles County Integrated Regional Water Management Plan (IRWMP) includes regional objectives to promote an integrated, multi-benefit, inter-regional approach to water management and planning. Objectives of the IRWMP include (1) sustaining infrastructure for local communities to maintain and enhance public infrastructure related to flood protection, water resources, and water quality and (2) improving water supply to optimize local water resources to reduce the Greater Los Angeles Region's reliance on imported water. The Project had been identified in the IRWMP as one of the regional-level projects that could help to increase recharge of the local groundwater basin and thereby increase local water supplies (IWRMP 2006).

2.3 EXISTING OPERATIONS

2.3.1 DAM

The Dam, completed in 1927, is located within the Angeles National Forest and was designed to capture stormwater runoff and associated debris and to attenuate (reduce) peak runoff flow rates from the upper 10.8 square miles of the Santa Anita Canyon Watershed. The Dam is a constant-angle concrete arch dam located 2.5 miles north of the City of Arcadia in the San Gabriel Mountains. The Dam is 225 feet high and 612 feet long and has a sluice gate, 3 outlet control valves, and 3 uncontrolled (i.e., ungated) spillways. The Dam was originally designed to hold a maximum reservoir pool of water at a surface elevation of approximately 1,316 feet above mean sea level (msl). As shown in Exhibit 2-2, Project Site Aerial and Watershed, the Dam and the

facilities immediately adjacent to the Dam (including the existing Dam Operator's house and storage shed) are located on land owned by, and within the jurisdiction of, the USFS. The area to the west of the Dam (including most of the access road, upper and lower water tanks) is located in an inholding area,[2] which is not under the jurisdiction of the USFS.

In addition to the dual purposes of the Dam noted above, the Dam also serves as a settling pool to remove sediment from inflows to ensure that the water quality is adequate for the downstream spreading grounds, which are described below. The Dam, which is under the jurisdiction of the California Department of Water Resources Division of Safety of Dams (DSOD), provides flood protection to the Cities of Arcadia, Monrovia, Temple City, El Monte, and unincorporated areas of Los Angeles County.

Since 1979, the DSOD has restricted long-term water storage in the reservoir behind the Dam to ensure the facility's compliance with the agency's seismic stability requirements since the Dam does not meet current standards for withstanding a maximum credible earthquake (MCE) or safely passing a probable maximum flood (PMF). In 2006, the DSOD established restrictions limiting the maximum reservoir pool to a surface elevation of 1,230 feet above msl but with a temporary maximum water surface elevation of 1,258 feet above msl until the completion of the sediment removal project and new riser construction (which would free drain the reservoir's water surface elevation to 1,230 feet above msl).

The LACDPW initiated the sediment removal project in the summer of 2009. Approximately 330,000 cubic yards of sediment were removed from the reservoir to maintain functionality to the Dam's valves and to meet DSOD's requirements for drawing down the reservoir to the restricted level after storms and during an emergency. The sediment removal was completed in fall 2012.

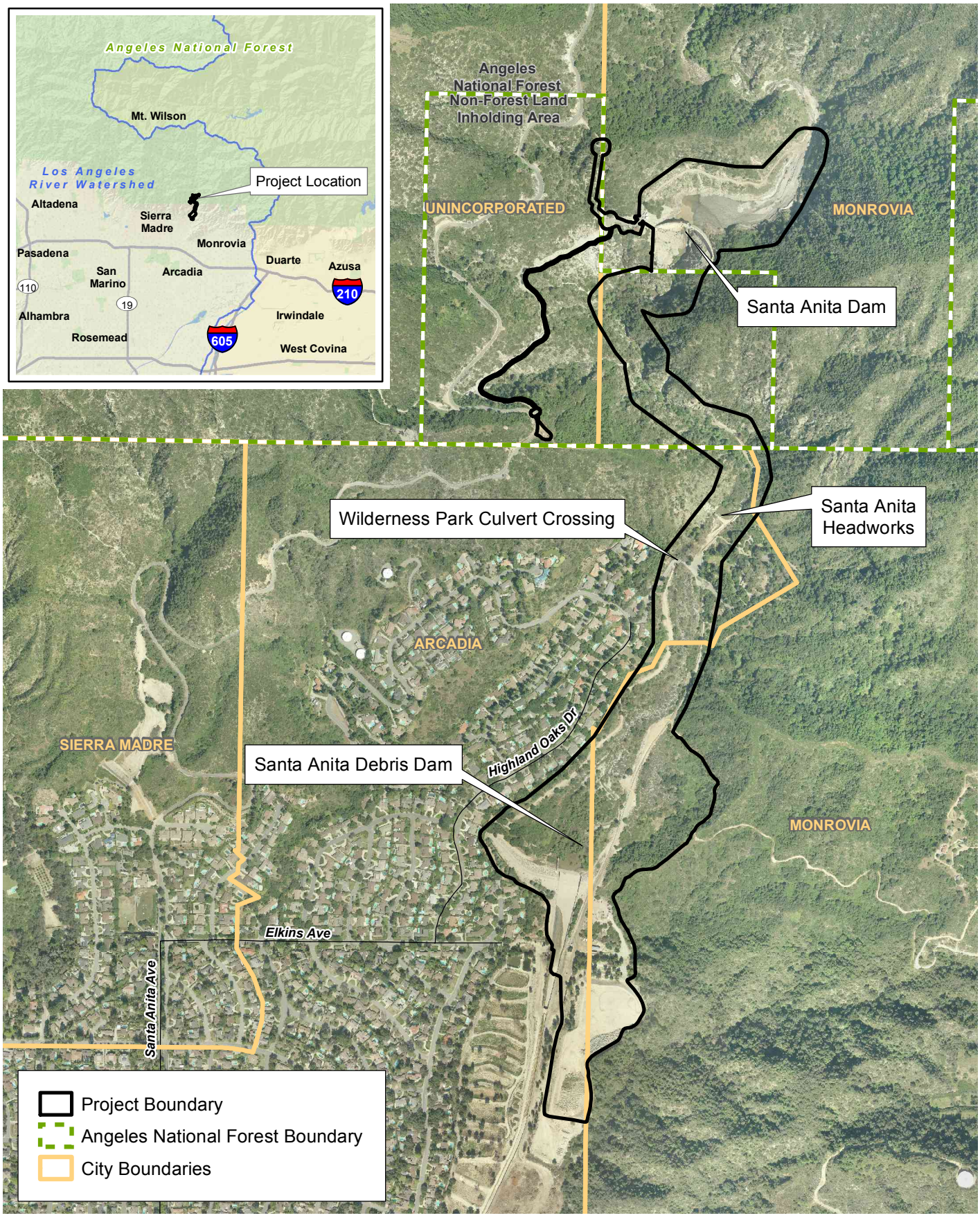
Concurrent with the sediment removal activities, the LACDPW modified the riser on the Dam's sluice gate to allow water above an elevation of 1,230 feet above msl to freely pass through the Dam, thus ensuring that DSOD's seismic requirements could be met. To make use of the impounded water below an elevation of 1,230 feet above msl, when conditions allow, the LACDPW also installed additional slide gates on the existing risers for the valves.

2.3.2 HEADWORKS

The Headworks structure is located downstream of the Dam, just south of and outside of the Angeles National Forest boundary, and upstream of the Debris Dam in the City of Arcadia. The Headworks intercepts flows released from the Dam and can redirect portions of those flows through a single 30-inch diameter reinforced concrete pipe (RCP) and into the Santa Anita Spreading Grounds and/or the Sierra Madre Spreading Grounds, where the water can be recharged into the local groundwater basin (Raymond Basin). The Santa Anita Spreading Grounds are located just downstream of the Debris Dam, approximately 0.75 mile south of the Headworks. The Sierra Madre Spreading Grounds are located approximately 1.5 miles southwest of the Headworks. The Headworks primarily consists of an earthen levee; a bypass channel with a tainter gate; and two 4-foot electric motor-operated slide gates. Although there are 2 slide gates at the Headworks, they both flow into the single 30-inch diameter RCP.

The RCP runs along the channel and then heads west along Grandview Avenue. Flows diverted by the Headworks into the 30-inch diameter RCP continue downstream toward the Sierra Madre Spreading Grounds. Along the way, there is a lateral "tee" structure near the Santa Anita

[2] Inholdings are lands located within the boundaries of national forests held by private or other non-USFS landowners. Inholdings may be managed by other federal agencies; State, County, local, or tribal governments; private individuals; or corporate entities.



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Project Site Aerial and Watershed

Exhibit 2-2

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

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Feet

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Spreading Grounds where two manually operated valves can allow regulated water into Santa Anita Spreading Grounds. However, flows that are not diverted into the 30-inch diameter RCP at the Headworks continue through to the Debris Dam downstream. Once the water is at the Debris Dam, it can be sent to the Santa Anita Spreading Grounds or released into Santa Anita Wash.

The operation of the Headworks is impeded when the Dam outflow exceeds 75 cubic feet per second (cfs), which is the maximum capacity of the Headworks' tainter gate. Any flow not diverted to the spreading grounds continues past the tainter gate downstream past the Wilderness Park to the Debris Dam. Currently, whenever changes to the flows to be delivered to either of the spreading grounds are needed, field crews must be contacted and dispatched to make manual adjustments to the gates.

As flows approach 75 cfs, the tainter gate must be fully opened to prevent damage, which prevents flows from reaching the Sierra Madre Spreading Grounds; in this situation, the flows continue downstream into the Debris Dam. This occurs several times annually and prevents water-conservation activities at the Sierra Madre Spreading Grounds. As flows recede, the tainter gate can again be operated, allowing water conservation activities to resume. When flows exceeding 300 cfs are released from the Dam, the Headworks' earthen levee can be overtopped and potentially lead to the levee's failure. Flows of this magnitude are expected to occur during a two-year storm event (a storm event likely to occur every two years); when this does occur, water can no longer be diverted by the Headworks to the spreading grounds until repairs are made to the levee. Repairs to the levee usually take a few days or several weeks depending on the amount of residual flows and stormwater runoff required to be released from the Dam. This delay results in further loss of groundwater recharge opportunities at the spreading grounds. When the levee washes out, the flows can also wash out the road and Wilderness Park Culvert Crossing that provides access to the Wilderness Park, located approximately 450 feet downstream of the Headworks.

2.3.3 DEBRIS DAM

The Debris Dam is formed by a 56-foot-high earth embankment dam that was constructed in 1960 by the U.S. Army Corps of Engineers (USACE) for flood control, debris control, and water conservation purposes. The majority of the Debris Dam facility is located within the City of Arcadia, with a small portion located within the City of Monrovia city limit.

The Debris Dam, whose original design capacity is 119 acre-feet, is located just over 1 mile downstream of the Dam. The Debris Dam has a spillway consisting of an ungated, concrete-lined rectangular open channel, located within the embankment near the east abutment. The spillway is approximately 160 feet wide and has a capacity of 38,000 cfs, which is adequate to pass the PMF. The outlet works allow water that is below the spillway elevation to be sent from the Debris Dam to the Santa Anita Spreading Grounds or into the Santa Anita Wash below the Debris Dam. After its completion, the Debris Dam was transferred from the USACE to the LACFCD for operation and maintenance. The Debris Dam became subject to jurisdiction of DSOD in 1982.

In 1995, following a seismic safety study, the DSOD determined that the Debris Dam did not meet standards for seismic safety and required the outlet gate to remain open at all times to limit storage of water above 761 feet above msl. Since then, regular water conservation activities involving long term reservoir storage at the Debris Dam have ceased and it serves primarily to capture debris flows from the portion of the watershed between the Dam and the Debris Dam. The seismic constraint, however, allows for the temporary impoundment of storm inflows up to the capacity of the reservoir, with the water level to be returned to an elevation of 761 feet above msl as soon as practicable after each storm event. This return to the restricted elevation is accomplished gradually.

The Debris Dam provides flood protection by capturing sediment-laden stormwater runoff, allowing sediment to settle out in the Debris Dam, and discharging clear stormwater runoff to the channel downstream or into the Santa Anita Spreading Grounds. If the Debris Dam were to sustain damage or to fail as a result of seismic activity, debris would be released and deposited in the downstream channel, reducing its ability to safely convey subsequent storm flows in the channel; this could result in flood damage to downstream communities. In addition, a Debris Dam failure would wash out the Santa Anita Spreading Grounds and render them incapable of recharging stormwater runoff into the underlying groundwater basin.

2.3.4 PROJECT SITE AND SURROUNDING AREA CHARACTERISTICS

Land Uses

The Santa Anita Canyon Watershed, which contains the Project site, is mostly undeveloped. The majority of the watershed is located in the Angeles National Forest within the San Gabriel Mountains, which are very steep and among the most highly erosive mountains in the world. This watershed is also susceptible to wildfires, which can result in substantial debris flows during subsequent storm events. Land uses adjacent to the Project area include the natural open space and mountains in the Angeles National Forest (i.e., San Gabriel Mountains) to the north; the recreational and open space uses associated with the Wilderness Park and City of Monrovia to the east; and City of Arcadia single-family residential uses to the south and west.

The USFS Chantry Flats Recreation Area is located approximately one mile above the Dam north on Chantry Flats Road. This recreation area contains a large picnic area and trailheads for many popular hiking trails. The gate on Chantry Flats Road, which leads to Chantry Flat Recreation Area, is open daily from 6:00 AM to 10:00 PM, and a U.S. Forest Adventure Pass is required for parking and day use in this area. The Santa Anita Reservoir and Dam can be viewed from some of the hiking trails that are located above the Reservoir and Dam.

The Dam is located within the Angeles National Forest and is zoned as “Back Country Motorized Use Restricted” by the USFS Land Management Plan (USFS 2005b). The portions of the Project located within the City of Arcadia, including the Headworks and the Debris Dam, are designated by the *Arcadia General Plan* as Public Facilities and Grounds (P) (Arcadia 2010b). Current zoning for the site is Residential Mountainous (R-M), as defined by the City of Arcadia Zoning Code (Arcadia 2010a). The eastern slope of the Debris Dam that is located in the City of Monrovia is designated Hillside Wilderness Area in the General Plan and zoned as Hillside Wilderness Preserve (Monrovia 2012).

Exhibit 2-2, Project Site Aerial and Watershed, provides an aerial depiction of the locations of notable features of the Project site. The Dam is located at the southern margin of the San Gabriel Mountains. There are no residential land uses adjacent to the Dam, with exception of the home of the Dam Operator, an LACFCD employee. The nearest residences to the Dam are located approximately 0.4 mile to the south on Highland Vista Drive. The Dam site has an office building/relief quarters, control house, parking lot, and a paved road that serves as the primary access road to the Dam site off Chantry Flats Road, and continues to run along the west side of the reservoir down to the reservoir floor. Running from the base of the reservoir through approximately 1,500 feet of solid rock is a tunnel used for sediment removal via a conveyor belt system.

The Headworks structure is located approximately 0.5-mile downstream of the Dam on the border of the Angeles National Forest and the City of Arcadia and is accessed off Highland Oaks Drive through the adjacent Wilderness Park. The Wilderness Park is a 120-acre nature preserve located below Big Santa Anita Canyon, which is owned and managed by the City of Arcadia. Park access

is provided by the Wilderness Park Culvert Crossing downstream of the Headworks. The Park consists of a passive recreation area on 8.5 acres, and the balance of the preserve remains in its natural state. The park includes a Nature Center, a multi-purpose field, nature trails, a stream, picnic and barbeque areas, a fire circle, and restrooms. The nearest residences to the Headworks are approximately 0.2 mile to the southwest of the Headworks, along Highland Oaks Drive. To the east and south of the park is City of Arcadia open space.

The Debris Dam is located approximately 0.5 mile downstream of the Headworks in the Cities of Arcadia and Monrovia, and can be accessed via a maintenance road that runs along the channel. Single-family residences line the western edge of the Debris Basin and Debris Dam, with the nearest home approximately 200 to 400 feet away from the Debris Dam spillway, where most of the construction will take place. To the east of the Debris Dam is City of Monrovia open space.

Topography and Geology

Santa Anita Canyon is located at the southern margin of the San Gabriel Mountains, which is part of Southern California's Transverse Ranges physiographic and geologic province. The crest of the Dam is located at an elevation of approximately 1,325 feet above msl. Further downstream, the Headworks and Wilderness Park Culvert Crossing are at approximately 870 feet above msl and the Debris Dam is at approximately 774 feet above msl.

The Dam is located at the upper end of the Santa Anita Canyon. The canyon walls are composed of granitic bedrock. Near-surface bedrock is moderately to highly weathered and very closely fractured by joint sets and numerous minor shears. Alluvial materials overlie the granitic bedrock along the canyon floor and consist of older terrace deposits and recent streambed deposits of the Santa Anita Wash.

This province is one of the most seismically active regions in California. The Sierra Madre Fault, a reverse fault that is considered capable of producing an earthquake with a probable magnitude of 6.0 to 7.5 on the Richter Scale, runs through the Project site approximately 1,000 feet (300 meters) south of the Dam and near the Headworks. The Raymond Fault is predominantly a left-lateral strike-slip fault and is thought to be capable of a 6.5 magnitude earthquake. The San Andreas Fault, a strike-slip fault that is considered capable of producing an earthquake with a probable magnitude of 6.8 to 8.0 on the Richter Scale, is located about 20.5 miles northeast of the Dam (SCEDC 2013). These and other active faults near the Dam are considered capable of producing significant seismic shaking at the site.

Hydrology and Drainage

As shown on Exhibit 2-2, Project Site Aerial and Watershed, the Project site is located within the 834-square-mile Los Angeles River Watershed. The upper 360-square-mile portion is covered by forest or open space, and the remaining 474 square miles are developed with highly urbanized land uses (LACDPW 2013).

Surface runoff from the Santa Anita Canyon Watershed drains along natural courses towards the Santa Anita Wash, which runs north-south beginning at Dam. The purpose of the Dam is to decrease peak flood flow by retaining stormwater and discharging it at controlled release rates. The released flows continue downstream to the Headworks facility, which intercepts the creek flows and either allows the flows to continue downstream to the Debris Dam; to be diverted to the Sierra Madre Spreading Grounds; or to be diverted to into the Santa Anita Spreading Grounds.

Flows into the Debris Dam can be temporarily retained to allow for the deposition of sediment and debris. Flows can be diverted to the Santa Anita Spreading Grounds, where the water is then recharged into the Raymond Basin, or flows can be released to the Santa Anita Wash Channel. The Raymond Basin stretches 41 square miles and is bound by the City of La Cañada Flintridge and the San Rafael Hills on the west; Santa Anita Canyon on the east; the San Gabriel Mountains on the north; and the Raymond Fault on the south. Recharge to the Raymond Basin mainly occurs from direct percolation of precipitation and percolation of ephemeral creek flow from the San Gabriel Mountains. Historic high groundwater levels in the Project area range from less than 40 feet below ground surface in the lower portion of the project area to greater than 100 feet below ground surface in the upper portion of the Project area (DWR 2004).

Water that is not diverted to the Santa Anita Spreading Grounds and which overtops the Debris Dam spillway during storm events is conveyed in a concrete-lined channel that is a tributary of the Rio Hondo, which hydraulically connects the Los Angeles and San Gabriel River Watersheds through the Whittier Narrows Reservoir. Water in the Rio Hondo eventually flows to the Los Angeles River near the City of Downey.

The Federal Emergency Management Agency Flood Insurance Rate Map indicates that the Project site is located in Flood Zone D, which means there are possible but undetermined flood hazards. The majority of the Project area is located within the inundation hazard area of the Dam (Arcadia 2010b).

Biological Resources

Exhibit 4-1 from Section 4.4, Biological Resources, depicts the vegetation communities in the Project area. The area surrounding the Dam is undeveloped and comprised of natural vegetation types, including southern mixed chaparral and mixed coastal sage scrub, as well as unvegetated cliff faces. The area along Santa Anita Canyon between the Dam and the Headworks consists of a canyon with vertical walls or very steep slopes that are either unvegetated or dominated by dense chaparral. Further downstream towards the Debris Dam, vegetation types include mixed coastal sage scrub, southern mixed chaparral, southern cottonwood willow riparian forest, southern sycamore alder riparian woodland, southern riparian forest, sycamore alluvial woodland, mule fat scrub, coast live oak woodland, mixed woodland, oak woodland, ornamental, and ruderal (weedy) vegetation (BonTerra 2014b).

The Project area is comprised primarily of native habitats and provides suitable habitat for a number of special status plant and wildlife species. A full list of all special status plant and wildlife species that have been reported on the site, as well as a summary of their potential to occur in the Project area and whether or not they were observed during focused surveys, is provided in Section 4.4, Biological Resources.

Two special status plant species were observed in the Project area during the 2012–2013 surveys: Engelmann oak (*Quercus engelmannii*) and Coulter's matilija poppy (*Romneya coulteri*). No other special status plant species are expected to occur in the Project area either due to lack of suitable habitat or based on the results of the 2012–2013 focused surveys.

Special status wildlife species observed in the study area during the 2009 or 2012 focused surveys included coastal whiptail (*Aspidoscelis tigris stejnegeri*), two-striped garter snake (*Thamnophis hammondii*), yellow warbler (*Setophaga petechia*), yellow-breated chat (*Icteria virens*), and Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*). Additionally, 24 special status wildlife species have potential to occur in the Project area based on the presence of suitable habitat.

Project Site Photographs

Existing facilities on the Project site are identified in Exhibit 2-3A, Site Photographs – Dam; Exhibit 2-3B, Site Photographs – Headworks; Exhibit 2-3C, Site Photographs – Wilderness Park Culvert Crossing; and Exhibit 2-3D, Site Photographs – Debris Dam. A description of each photo is provided in the caption.

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Photo 1: This photograph depicts the Dam structure looking north, taken from the private access road that leads to the Dam. As shown, the Dam is surrounded by steep rocky slopes, with the downstream slopes armored in concrete. Also shown are the Dam Keepers house and other accessory structures on the western edge of the Dam.

Photo 2: This photograph is a close up of the Dam structure looking east. It depicts the downstream side of the Dam, and the concrete armored east slope, as well as the upstream side of the Dam, which was dewatered at the time the photograph was taken for the sediment removal project. At the center of the Dam is the existing spillway crest and Hydraulic Power Unit. The control house is shown at the bottom of the picture.

Photo 3: This photograph depicts the plunge pool south of the Dam structure. The flow continues downstream towards the Headworks and Debris Dam. As shown, both sides of the canyon are armored in concrete. The access staircase that allows for the periodic maintenance is also depicted.

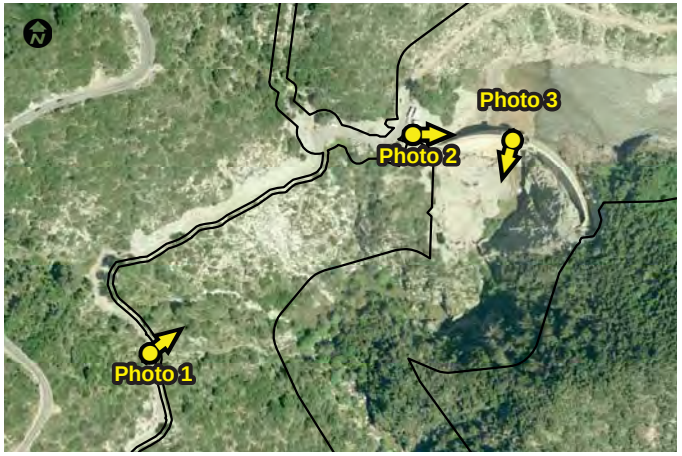

Photo location map.

Photo Location and Direction
Project Boundary

Site Photographs – Dam

Exhibit 2-3A

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

BonTerra PSOMAS

Photo 4: This photograph depicts the Headworks structure looking west from the adjacent access road. As shown, the Headworks primarily consists of an earthen levee, a bypass channel with a tainter gate, and two 4-foot, electric motor operated slide gates that divert flow to the spreading grounds. Also depicted is the steep vertical canyon wall, which is armored with concrete, as well as the vegetation that lines the watershed.

Photo 5: This photograph is a close up of the existing tainter gate within the Headworks structure. As shown, the tainter gate is open, allowing for flows to continue downstream toward the Debris Dam.

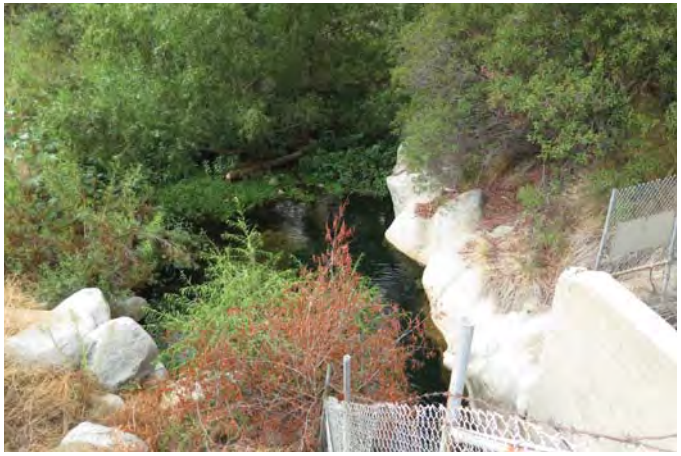

Photo 6: This photograph depicts the downstream side of the Headworks structure. As shown, the flow continues downstream past the Wilderness Park Bridge and towards the Debris Dam.

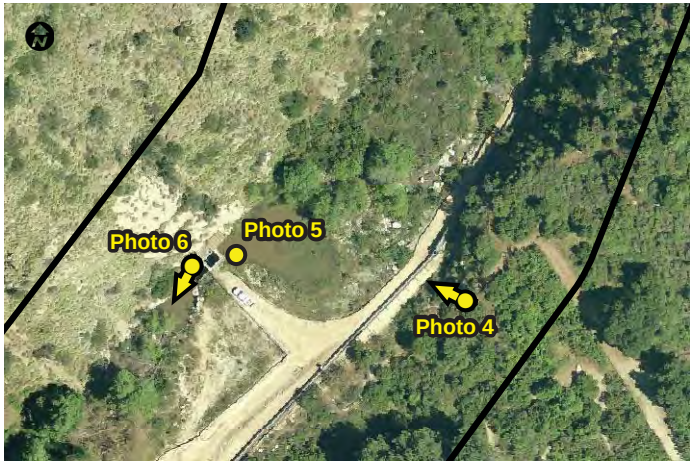

Photo location map.

Photo Location and Direction
Project Boundary

Site Photographs – Headworks

Exhibit 2-3B

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

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Photo 7: This photograph depicts the Wilderness Park Bridge that connects to the Wilderness Park looking west from the parking lot. This bridge provides the only public access to the Park. Immediately downstream of the bridge is a large sycamore tree.

Photo 8: This photograph is a close up of the Wilderness Park Bridge looking west. Shown are the removable guardrail and corrugated metal culverts that run under the bridge. Also shown is the sewer line that runs along the side of the bridge.

Photo 9: This photograph depicts the Wilderness Park Bridge looking east. The bridge leads directly to the Wilderness Park parking lot. To the north of the parking lot is the gated access road that leads to the Headworks (not shown). To the south of the parking lot is Clamshell Truck Trail, which provides private access to the Debris Dam (not shown).

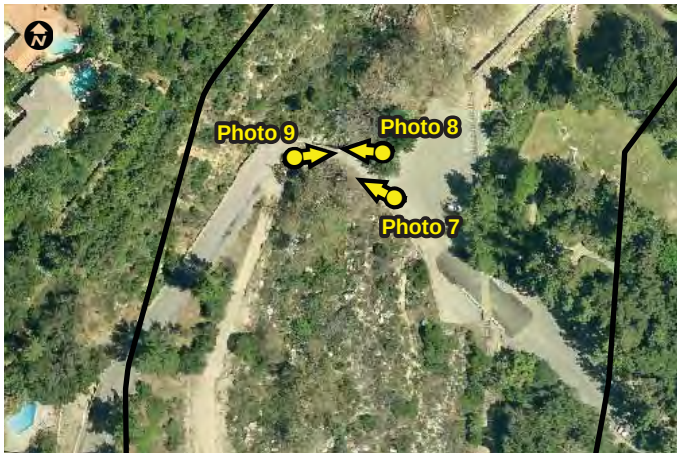

Photo location map.

Photo Location and Direction
Project Boundary

Site Photographs – Wilderness Park Culvert Crossing

Exhibit 2-3C

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

BonTerra PSOMAS

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Photo 10: This photograph depicts the Debris Dam embankment looking west. The Debris Dam allows for the temporary impoundment of storm inflows up to the capacity of the reservoir. Also shown are the City of Arcadia residences that line the western edge of the Debris Basin.

Photo 11: This photograph depicts the existing spillway located on the eastern side of the Debris Dam. The spillway consists of an un-gated, concrete-lined rectangular open channel that is approximately 160 feet wide. Also shown is the eastern abutment of the Debris Dam, which is a hillside vegetated with Coast Live Oak Woodland/Southern Mixed Chaparral.

Photo 12: This photograph depicts the Debris Dam looking north. As shown, the spillway continues into a concrete-lined channel that is a tributary of the Rio Hondo, which hydraulically connects the Los Angeles and San Gabriel River Watersheds through the Whittier Narrows Reservoir. A maintenance road runs along the western edge of the spillway and continues to the spreading grounds to the south. Also shown is the hillside on the eastern abutment of the spillway.

Photo location map.

Photo Location and Direction
Project Boundary

Site Photographs – Debris Dam

Exhibit 2-3D

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

BonTerra PSOMAS

SECTION 3.0 PROJECT DESCRIPTION

3.1 PROJECT COMPONENTS

3.1.1 DAM

The Dam would be structurally altered to accommodate a new spillway with sufficient capacity to pass the PMF of 26,100 cfs in order to reduce the risk of Dam failure from uncontrolled overtopping during major storm events. The proposed improvements to the Dam would not result in changes to the existing maximum water surface elevation restrictions; therefore, the reservoir's capacity to retain water would not be altered by Project implementation.

The spillway modification would consist of cutting a "notch" in the Dam crest to allow the PMF to overtop in a controlled manner. An overview of the design concept is illustrated on Exhibit 3-1, Dam Spillway Modification Plan. This exhibit provides a "bird's eye" view of the Dam structure, the existing spillway, and the slope armoring on the downstream side. The existing auxiliary spillway bowl and trash rack and existing emergency crest spillway would be removed. As shown on Exhibit 3-2, Dam Spillway Modification Cross-Section and Profile, the proposed notch would be centered on the crest of the Dam, similar to the existing emergency crest spillway, and would require concrete removal from the Dam. An existing spillway on the far western edge of the Dam would remain and be unaltered by the Project; however, the existing auxiliary orifice spillway beneath the proposed new spillway would be removed.

A new pedestrian bridge would be constructed over the notch and the existing hoist system would be upgraded to have a higher load capacity and re-aligned to accommodate the new spillway. The upgrade work includes the relocation of the lower hoist tower along the Dam crest (and potentially cantilevered of the back side, if necessary). The proposed improvements would not change the height of the Dam; the crest of the Dam would remain at an elevation of 1,325 feet above msl and the parapet wall would remain at an elevation of 1,328 feet above msl.

To better manage stormwater runoff and to ensure reliability and efficiency of operations, six of the existing valves would be replaced (three control valves and three backup valves, see the downstream elevation in Exhibit 3-2), along with new electrical and control systems. The Dam's structural concrete would be repaired to ensure that it meets acceptable standards consistent with the required seismic performance of the Dam.

As shown on Exhibits 3-1 and 3-2, the downstream canyon walls and the toe of the Dam would be re-armored with additional reinforced gunite or equivalent concrete erosion protection to dissipate the energy from the potential overtopping water as the flow cascades through the spillway notch and the orifice spillway or sluiceway. The flow would be directed onto the downstream armoring before flowing into the channel downstream of the Dam. The new re-armoring would reinforce the existing armoring that extends approximately 100 feet downstream from the toe of the Dam. The re-armoring would be held in position with tie-back anchors to be drilled and grouted into the bedrock. The tie-ins for the re-armoring may include superficial rock excavation, grading, and subsurface pressure grouting. The color of the material used for re-armoring would be the same as the existing concrete.

The Project would also include improvements to ancillary facilities of the Dam, as shown on Exhibit 3-3A and Exhibit 3-3B, Dam Ancillary Facilities Improvements. The existing garage/storage shed would be demolished and replaced with a new three-bay garage (the third bay would house a new back-up generator). Additionally, the existing Dam Operator's house would be removed and replaced with a helipad to provide aerial access to the Dam in the event

of an emergency. It is anticipated that the helipad would only be used one or two times per year. The addition of a helipad would allow for improved emergency access to the Dam, as well as the other facilties downstream, especially if access roads get obstructed. The existing relief quarters and control house would remain to serve as an office. Although the Dam Operator would no longer reside at the Dam, he/she would still be on-site daily and available on-call after hours. The Project would include remote control capabilities that provide redundant control options from multiple off-site locations. The Dam also has a built-in safety mechanism to automatically pass water through the Dam once the reservoir surface level reaches the DSOD restriction.

The existing potable water system that serves the Dam site would be replaced. The water system currently consists of a 60,000-gallon upper tank located off Chantry Flats Road that connects to two 5,000-gallon lower tanks located near the Dam access road via a pipeline that runs down the mountainside. The slope adjacent to the upper tank has erosion damage and would be repaired as part of the Project. To repair the slope, an approximate 216-square-foot eroded gully located near the tank's foundation would be grubbed and stabilized with engineered fill and geotextile fabric or with support piles. The exposed portions of the existing water pipeline would be removed while any underground portions would be capped and abandoned in place. The replacement pipeline would run along the same general alignment as the existing pipeline. The two lower tanks would be removed and would not require replacement.

The existing manual swing gate at Chantry Flats Road that provides secured entry to the Dam access road would be replaced with a new electric slide gate. In order to provide electricity to the gate and new lighting/intercom systems, a power line would be strung on up to seven new power poles to be installed along the outer edge of the Dam's access road, or where possible, in conduit along the inner slope of the access road. The proposed locations of these power poles are shown on Exhibit 3-3A.

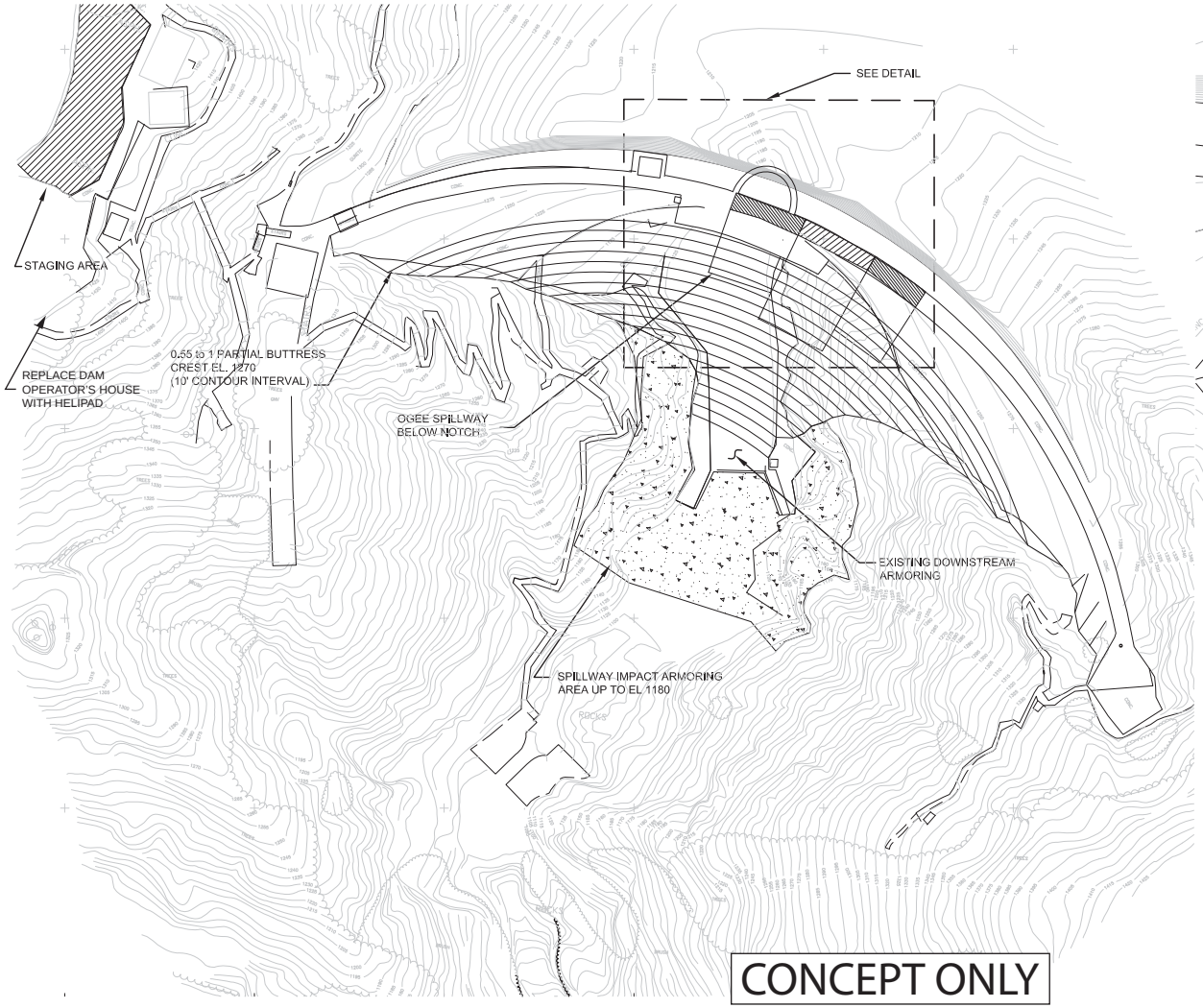
3.1.2 HEADWORKS AND WILDERNESS PARK CULVERT CROSSING

Headworks

The Headworks structure would be replaced and the associated earthen levee would be partially reconstructed to better manage the diversion of flows to the downstream spreading grounds and the downstream Debris Dam. A rehabilitation of the Headworks is needed to protect facilities from stormwater damage and to direct stormwater runoff to the spreading grounds for groundwater recharge.

Redevelopment of the Headworks would include reconstruction of the levee to ensure it can withstand flows produced by a 25-year storm event and replacement of the existing tainter gate (used to divert flows) with a new rubber diversion structure. The new rubber diversion structure would be a pneumatically operated, bottom hinged, spillway gate system. Exhibit 3-4, Headworks Modification Plan and Detail, depicts the proposed improvements superimposed over the existing facility design and two cross-sections of the proposed improvements.

The majority of the existing Headworks structure would be demolished and removed, including the tainter gate, supporting walls, catwalk, and keys. The new facility would increase the width of the structure by approximately 20 feet in order to house the 34-foot rubber diversion structure. Operation of the rubber diversion structure would result in the retention of waters behind the levee to allow for the diversion of flows through the intake gates and into the existing 30-inch RCP leading to the Santa Anita Spreading Grounds and/or Sierra Madre Spreading Grounds. The pool created by the new rubber diversion structure would remain the same as under existing conditions. Construction of the new diversion structure would require work in the creekbed



DETAIL 1

CONCEPT ONLY

APPROXIMATE SCALE IN FEET
0 60 120

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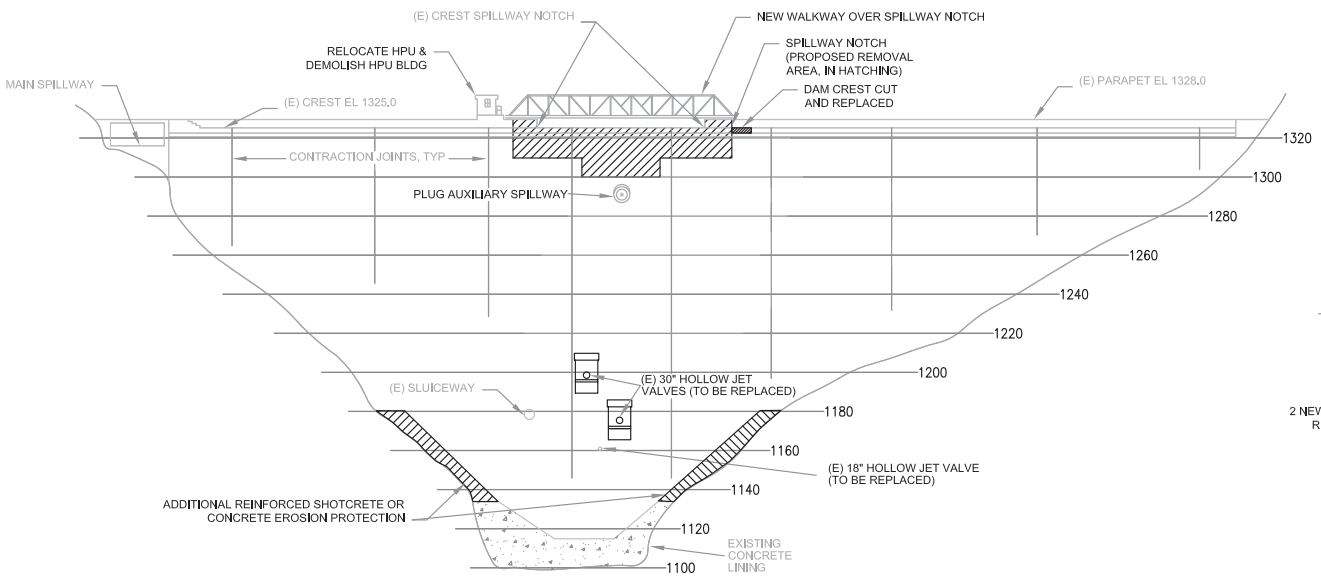
Dam Spillway Modification Plan

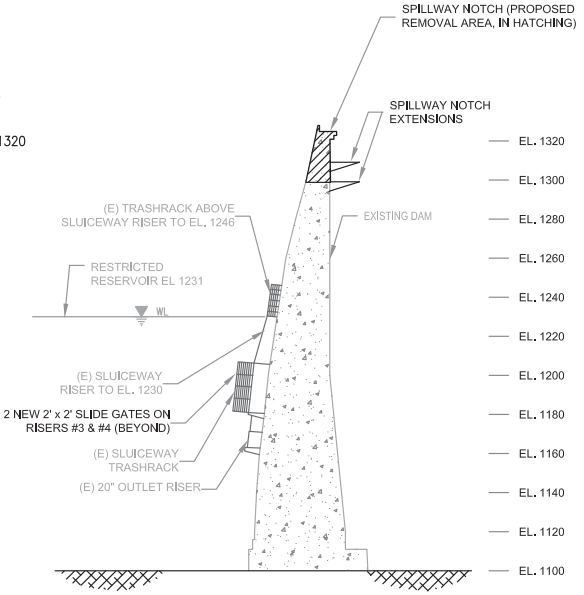
Exhibit 3-1

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

BonTerra PSOMAS



DOWNSTREAM ELEVATION (DEVELOPED)



CROWN SECTION

CONCEPT ONLY

Note:
The proposed buttress shown on this conceptual plan is not a part of this Project.

APPROXIMATE SCALE IN FEET
0 60 120

Dam Spillway Modification Cross-Section and Profile

Exhibit 3-2

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

BonTerra PSOMAS

(Rev 04/17/14 CJS) Projects\CoLADPW\J166\Graphics\MND\ex_dam_rehab_cross.pdf

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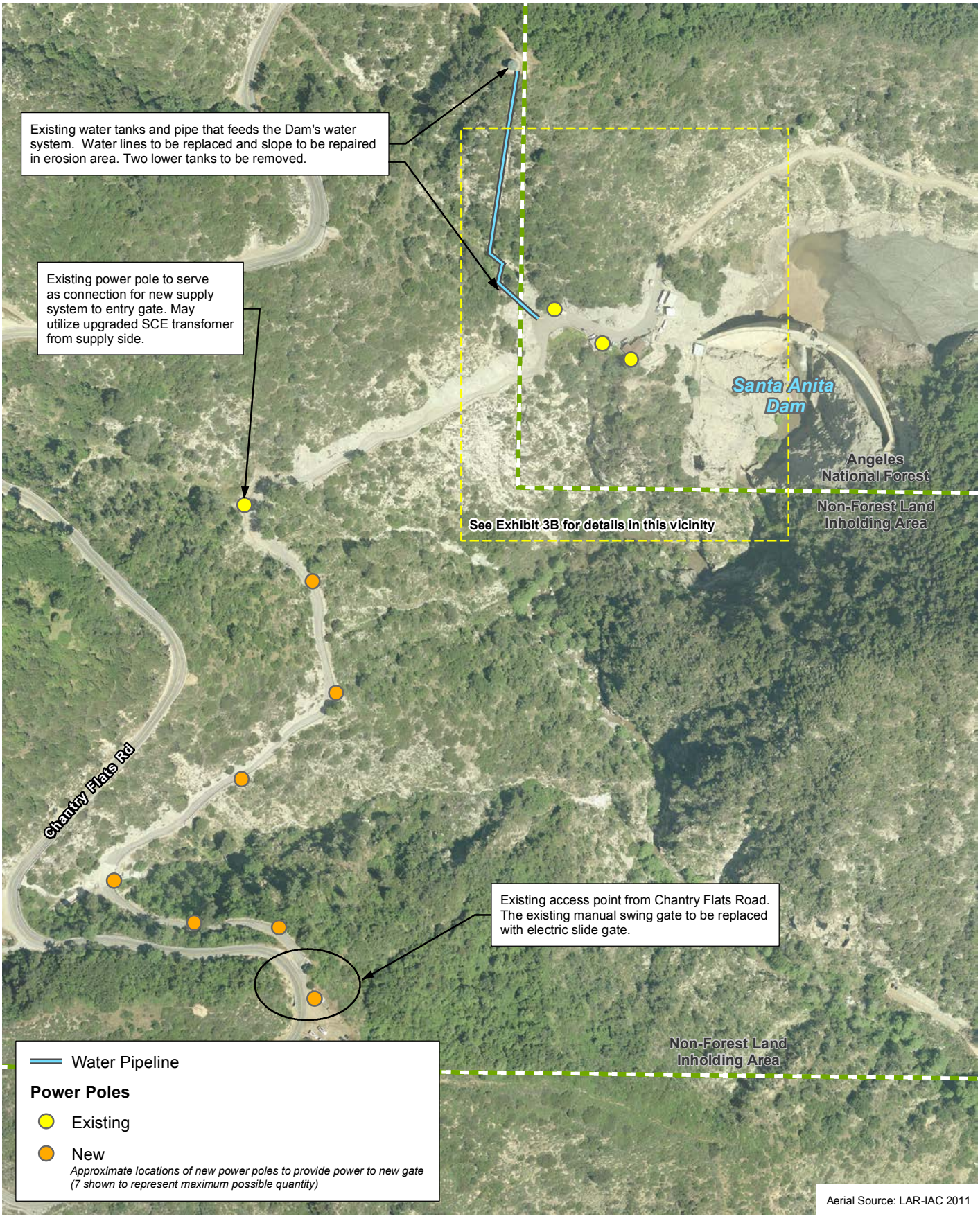

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Dam Ancillary Facilities Improvements

Exhibit 3-3A

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

N W E S

300 150 0 300 Feet

BonTerra PSOMAS

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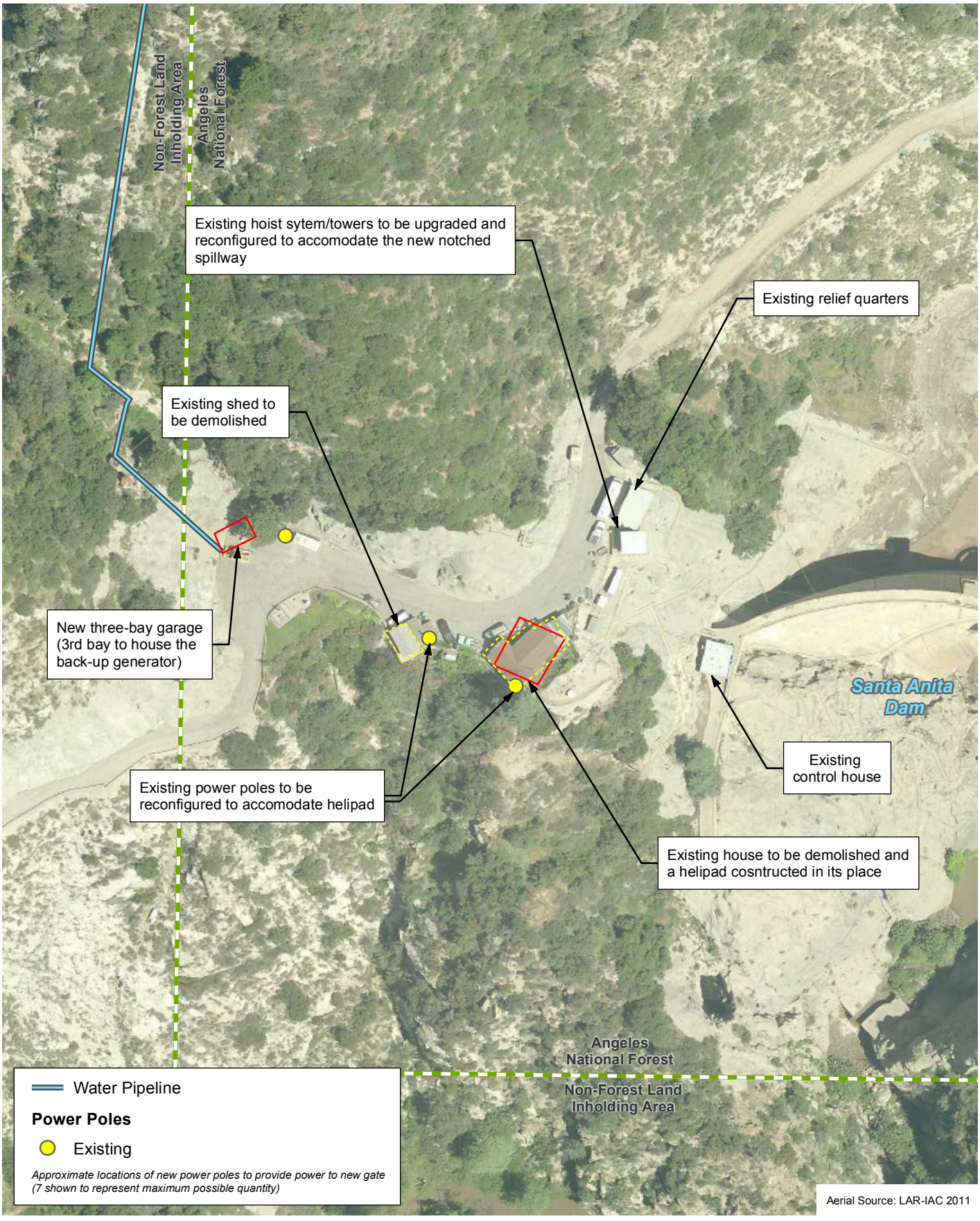

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Dam Ancillary Facilities Improvements

Exhibit 3-3B

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

N W E S

100 50 0 100 Feet

BonTerra PSOMAS

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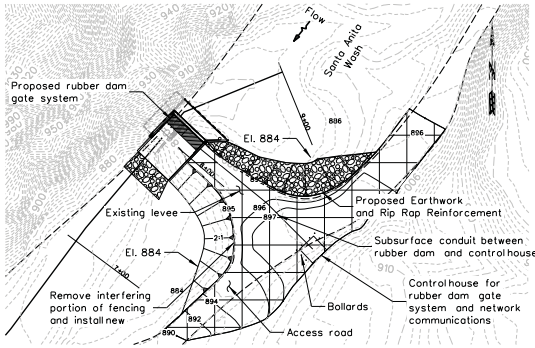
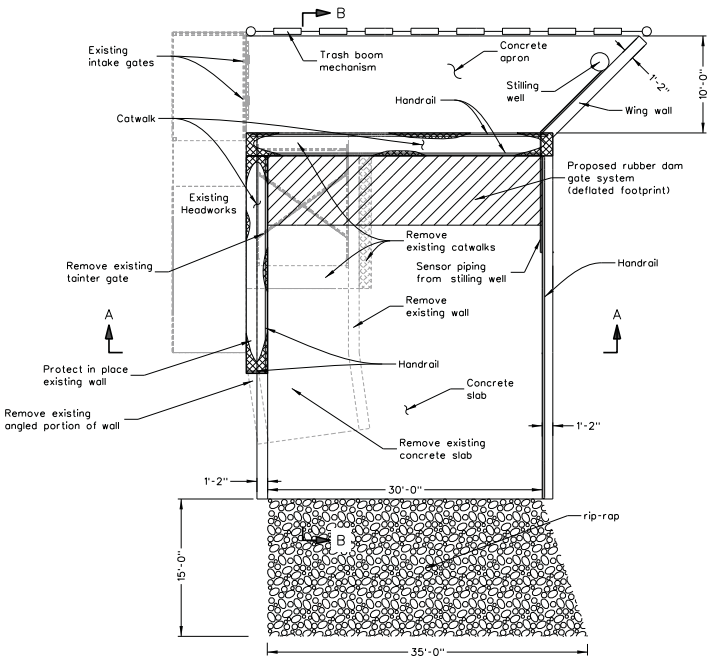
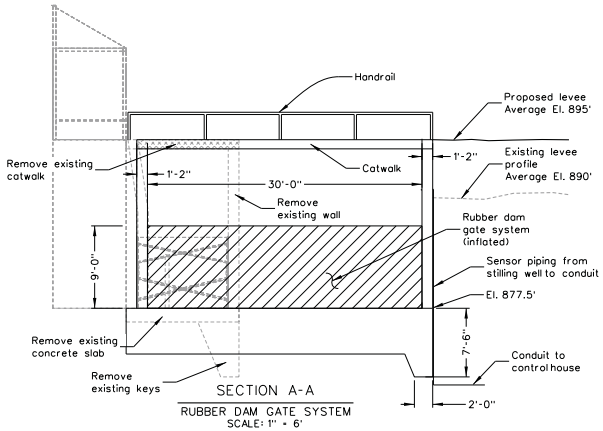


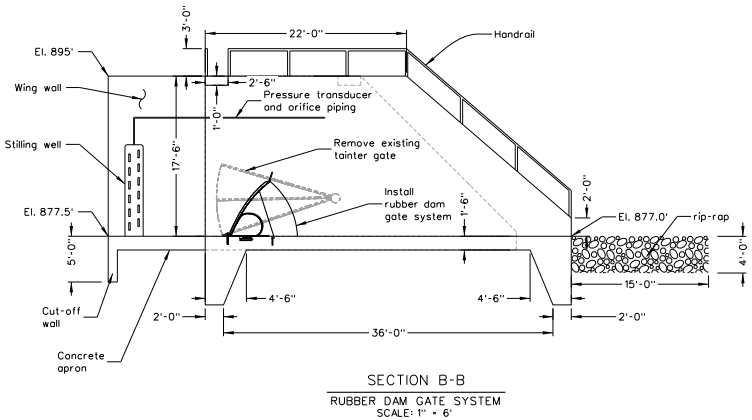
HEADWORK VICINITY
AREA
SCALE: 1" = 40'



HEADWORK PLAN VIEW
RUBBER DAM GATE SYSTEM
SCALE: 1" = 6'



SECTION A-A
RUBBER DAM GATE SYSTEM
SCALE: 1" = 6'



SECTION B-B
RUBBER DAM GATE SYSTEM
SCALE: 1" = 6'

CONCEPT ONLY

Headworks Modification Plan and Detail

Exhibit 3-4

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

BonTerra PSOMAS

extending approximately 25 feet downstream of the Headworks, including the placement of new riprap on the downstream side.

The rehabilitation of the Headworks would also include a new control system, including remote operation capabilities, to increase efficiency of water conservation operations. Currently, the response time required for County personnel to drive to the Headworks and manually operate the tainter gate, along with the limited flow rates that can be bypassed, results in the loss of a water conservation opportunity. A new control system integrated with the control system of the other Project components would optimize water conservation. A control house for the rubber diversion structure would be constructed on the other side of the channel next to the access road.

The earthen levee would be reinforced and raised approximately five feet higher to match the height of the Headworks structure by removing and under-excavating the existing levee and rebuilding the new levee using a combination of imported fill and suitable material from the existing levee. It would then be recompacted to the proposed height. The access road leading to the facility would be modified to match the height of the reinforced earthen levee. The existing riprap on the upstream side of the levee would be reinforced. A subsurface conduit would be installed along the length of the levee to connect the rubber diversion structure to the control house on the other side.

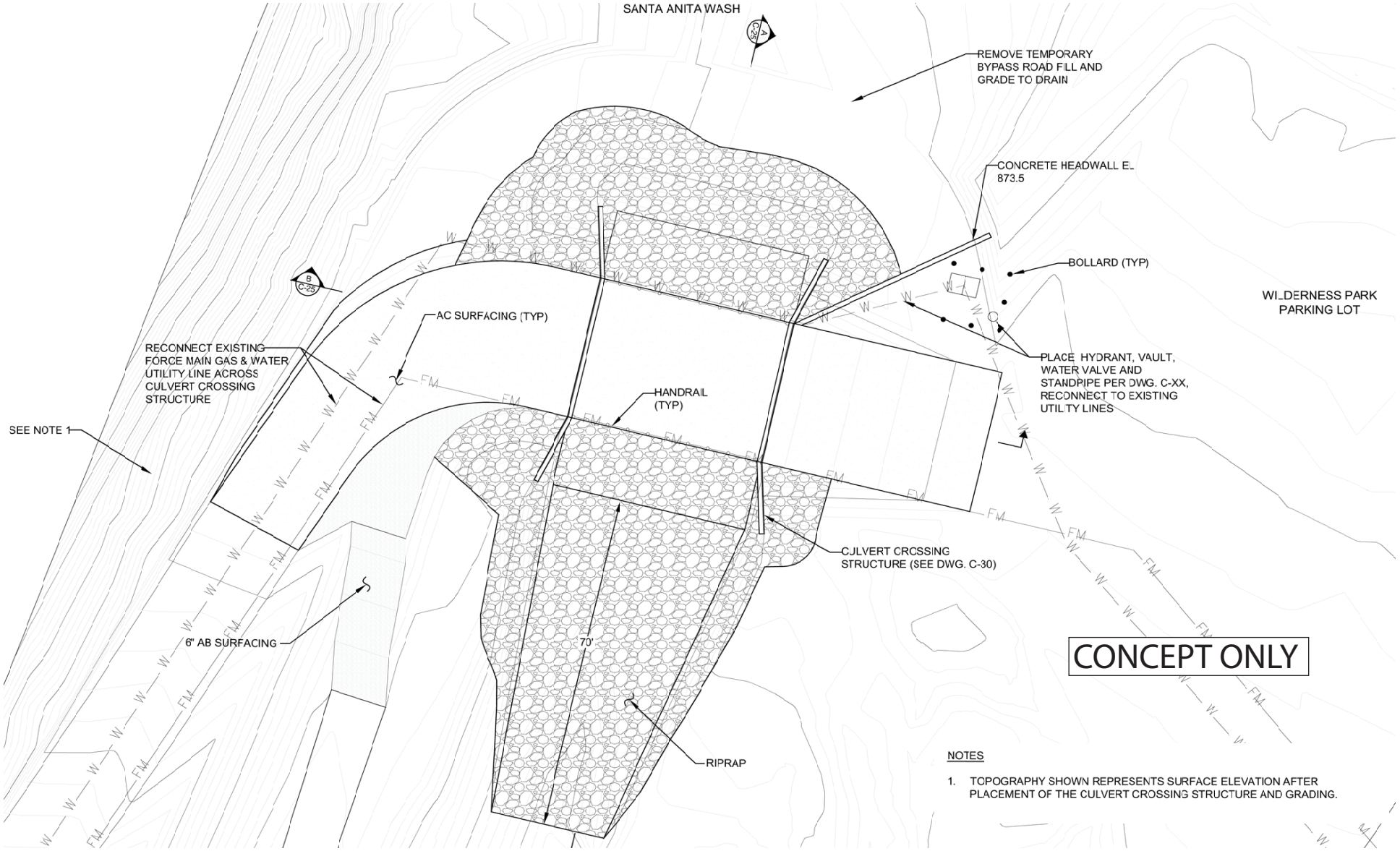
Wilderness Park Culvert Crossing

In addition to the improvements at the Headworks, armoring of the roadway and construction of a replacement Culvert Crossing to the Wilderness Park is needed to ensure that the structure can withstand flows produced by a larger storm event. The existing Culvert Crossing located approximately 450 feet downstream of the Headworks, including the concrete slab and corrugated metal culverts, would be removed and replaced with a new crossing structure.

Exhibit 3-5, Culvert Crossing Plan, depicts the preliminary engineering design for the proposed Culvert Crossing. As depicted, the Culvert Crossing would be approximately 30 feet wide on the deck plate, allowing for two-way traffic. The new Culvert Crossing would be built on top of a new abutment and would be designed with a permanent guard rail and flexible pavement driving surface adequate for emergency vehicles. The new roadway elevation of the Culvert Crossing would be raised above the existing roadway elevation by approximately 4.5 feet to accommodate higher flows. Approximately 1,800 square feet of the roadways leading to and from the Culvert Crossing would be repaved and sloped to join the existing grade.

Approximately 30 feet of the channel upstream and downstream of the existing Culvert Crossing would be grubbed and graded to accommodate the new Culvert Crossing. It is anticipated that adequate vehicular and pedestrian access could be provided to the Arcadia Wilderness Park for the majority of the construction period for the Culvert Crossing, with only occasional closures required for periods of about a week or less at any given time during construction. Notification of any temporary closures would be posted at the entrance to the Wilderness Park. Those brief closures would avoid important events at the Wilderness Park, such as the overnight Boy Scout campouts every Friday and Saturday and youth day camps every weekday between mid-June to late-August. However, in order to provide a conservative analysis for impacts to Biological Resources (see Section 4.4 of this MND), the assembly of a temporary bypass crossing located north of the existing Culvert Crossing, which could require removal of a sycamore tree, has been assumed and assessed, to account for the event that the temporary crossing is used.

Therefore, access to the Wilderness Park would be maintained throughout construction with minimal interruptions to access. Two existing sycamore trees located adjacent to the crossing on the eastern shore of the Wash, south of the Culvert Crossing, would need to be removed. One



Culvert Crossing Plan

Exhibit 3-5

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

BonTerra PSOMAS

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sycamore located on the eastern shore of the Wash, north of the Culvert Crossing, may need to be removed, depending on whether or not the temporary bypass crossing is installed. In order to provide a conservative analysis, this IS/MND assumes that all three upstream and downstream sycamore trees would be removed.

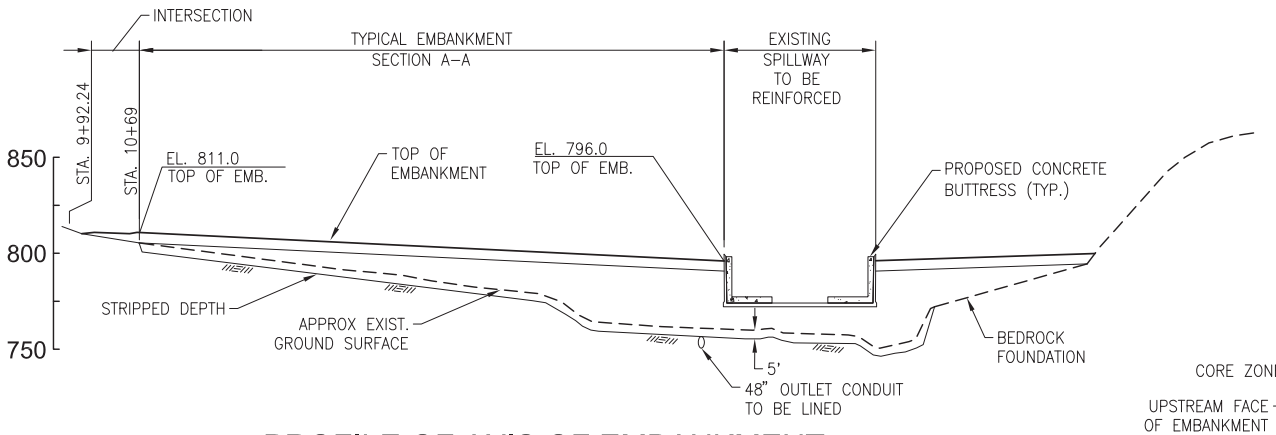
The LACFCD may transplant the root ball(s) of the sycamores to a suitable riparian location, and/or utilize the woody debris from the sycamore to enhance habitat value at another nearby location, if determined to be feasible and if approved by the County and other appropriate parties. In addition, new sycamore trees would be planted within a 100-foot radius of the original location of any removed existing trees (see MM AES-1).

New riprap would be installed upstream and downstream of the Culvert Crossing. The roadways leading to and from the Culvert Crossing would be armored, 36 feet on the upstream side and 84 feet on the downstream side, to withstand flows and sloped to join the existing grade. The existing water and sewer lines that run through the current Culvert Crossing would need to be relocated to the new height and alignment of the structure. The sewer force main is on the downstream surface of the Culvert Crossing and the water line is on the upstream surface of the Culvert Crossing. Additionally, the fire hydrant, vault, water valve and standpipe would be demolished and relocated approximately 15 feet to the north in the case that the temporary bypass crossing is utilized. All utility trenching and relocations would remain within the area anticipated for impacts by the Culvert Crossing construction activities, and there would be no changes in water/sewer quantities or demands as a result of the Project.

3.1.3 DEBRIS DAM

Remediation of the seismic deficiencies at the Debris Dam would involve improvements to the existing structures, including the intake tower and embankment. Exhibit 3-6, Debris Dam Rehabilitation, shows an overview of the various modifications that would be required. As a result of the loss of water conservation capacity from the DSOD restrictions on the Dam, there is an increased need to capture as much stormwater runoff as possible in facilities below the Dam. As a result, the Debris Dam would also be enlarged by raising the existing spillway by four feet. Remediating the seismic deficiencies at the Debris Dam would result in the DSOD removing the operational restrictions on the facility, thereby restoring 119 acre-feet of water conservation capacity. Enlarging the Debris Dam would create an additional 40 acre-feet of additional storage capacity, for a total of 159 acre-feet. When captured stormwater is released from the Dam to the spreading grounds for groundwater recharge, the Debris Dam can then capture more runoff, which would allow for water storage capacity multiple times in a single season depending on the frequency, duration, and intensity of storm events.

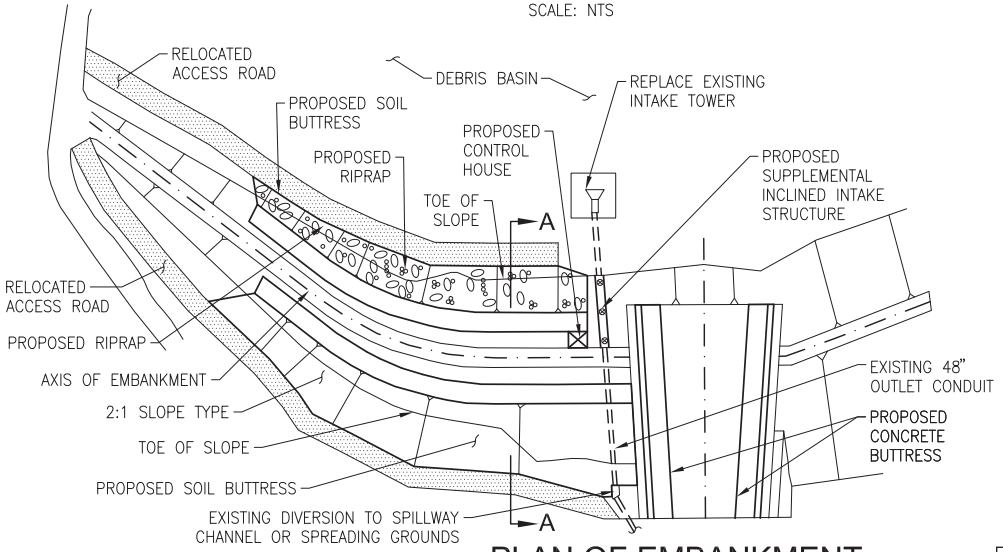
The intake tower located in the Debris Dam is unable to resist seismic loading and would be strengthened or replaced. The improved intake tower would be connected to the existing 48-inch outlet pipe (being lined as part of this Project). The outlet pipe has an existing junction box, which is used to deliver water either into the spillway channel or into the spreading grounds. The upstream and downstream portions of the Debris Dam embankment and alluvial foundation material that are subject to potential liquefaction would be reinforced with structural buttressing. Currently, a cross-section of the Debris Dam resembles a triangle (e.g., sloped sides on the upstream and downstream sides of the dam) with a flat top (e.g., flattened to accommodate vehicular access). The top of the embankment ranges from an elevation of 796 feet above msl at its center to an elevation of 811 feet above msl at the western edge. The construction activities would involve the removal of the existing riprap exterior surface on portions of both the upstream (approximately 0.69 acre) and downstream (approximately 0.89 acre) slopes. Engineered fill materials beneath the riprap would be excavated and removed, and an engineered buttress would be constructed. Upon completion of construction activities, the sloped upstream and downstream



PROFILE OF AXIS OF EMBANKMENT

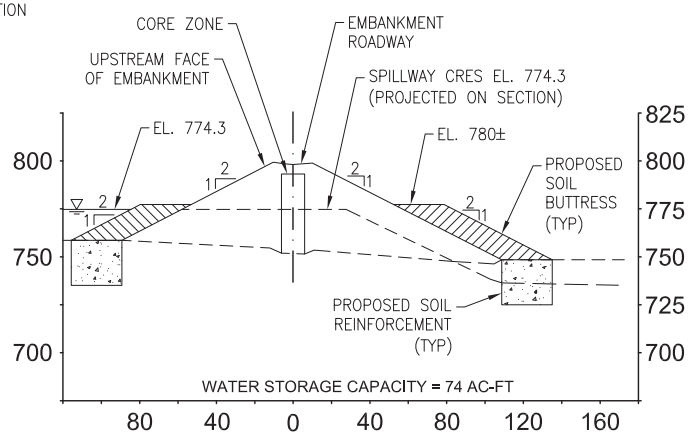
(LOOKING UPSTREAM: TOP OF EMBANKMENT ELEVATIONS ARE HIGHEST ELEVATIONS ON CREST)

SCALE: NTS



PLAN OF EMBANKMENT

SCALE: NTS



SECTION A-A

SCALE: NTS

CONCEPT ONLY

Debris Dam Rehabilitation

Exhibit 3-6

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

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surfaces of the Debris Dam would be reconfigured into a single stair-stepped terrace. The surface of the Debris Dam would be completed with a riprap similar to the existing condition.

As part of the improvements, six non-native deodar cedar trees located at the downstream toe of the embankment would be removed as mandated by the DSOD to ensure the structural integrity of the Debris Dam.

A new automated outlet gate and control system would be constructed to modernize operations and to ensure compatibility with other Project components. Upon completion of these improvements, the DSOD would issue a new certificate for the facility and remove the current operating restriction on the Debris Dam, which would increase the Debris Dam's available and allowable water conservation storage capacity from 0 acre-feet to 159 acre-feet.

In addition to the DSOD design approval requirements, modification of the Debris Dam requires approval under 33 United States Code (USC) Section 408 (hereafter referred to as Section 408), which requires obtaining a permit from the USACE. Under the terms of Section 408, any proposed modification to a USACE facility requires a determination that the proposed alterations are not injurious to the public interest and will not impair the usefulness of the facility. Consultation with the USACE will be required to determine whether the modifications would be considered a "Minor" (Minor 408) or "Major" (Major 408) Modification.

3.2 PROJECT CONSTRUCTION

Project construction would include several components that would occur in phases with some overlap in schedules. Each component of the Project is not dependent on the implementation of other components. Each component can operate on a fully functional stand-alone basis. While each component has its own benefits, the overall Project is designed to maximize those benefits by integrating the operation and functioning of the components so they work together more efficiently.

In compliance with the County Code and consistent with the City of Arcadia Municipal Code, all construction activity must be limited to the hours of 7:00 AM to 7:00 PM Monday through Saturday. However, in order to reduce construction-related impacts to nearby residences, the Project will only be under construction during the weekdays (Monday through Friday) and work would not occur on Saturdays.

3.2.1 CONSTRUCTION PHASING AND SCHEDULE

Table 3-1, Project Construction Schedule, shows the projected construction start dates and duration for the various Project components. As shown in Table 3-1, construction of the Project is anticipated to commence in the winter of 2015 and end in the fall of 2016. Certain elements of each Project component would likely not be performed during the wet season (October to April) in order to ensure flood control and water conservation efforts can proceed satisfactorily. While the schedule may be modified due to the date of Project approval and receipt of required permits, this table illustrates the approximate duration of major Project activities. As shown, it is anticipated that work would proceed at multiple facilities at one time. This estimated schedule is the basis for the impact analyses contained within Sections 4.3, Air Quality; 4.7, Greenhouse Gas; 4.12, Noise, and 4.16, Transportation and Traffic.

It is possible that the Debris Dam construction would require longer than the 6-month time period shown in Table 3-1. If the construction period of the Debris Dam were to be extended, this would spread out the construction activities over a longer period of time, resulting in less "intensity" of impacts. All Project-related impacts would be less than significant (some requiring mitigation),

and extending the duration of construction activities at the Debris Dam would not increase the level of significance. Decreasing the intensity and spreading out construction activities would generally reduce impacts to the topical sections listed above. Therefore, in order to provide a more conservative impact analysis, the more condensed construction period for the Debris Dam, as shown in Table 3-1, has been assumed throughout this MND.

TABLE 3-1
PROJECT CONSTRUCTION SCHEDULE

Construction Phase	Estimated Construction Start	Anticipated Duration
Dam	**December 2015**	**10 months**
Armor Canyon/Dam	December 2015	2 weeks
Garage, Helipad, Water System	December 2015	6 weeks
Remove/Replace Jib Crane	February 2016	2 weeks
Repair Concrete	February 2016	2 weeks
Hoist	March 2016	4 weeks
Construct New Spillway	April 2016	6 months
Install Valves	April 2016	2 weeks
Electrical	April 2016	4 weeks
Headworks and Wilderness Park Culvert Crossing	**March 2016**	**6 months**
Headworks Demolition	March 2016	1 week
Rubber Dam	March 2016	1 week
Construct Levee	March 2016	2 weeks
Culvert Crossing Demolition	April 2016	2 weeks
Site Clear/Grub	April 2016	4 weeks
Grading/ Implement Temporary Access	May 2016	2 weeks
Abutments and Wing Walls	June 2016	4 weeks
Construct Culvert Crossing Deck	July 2016	6 weeks
Paving Culvert Crossing	August 2016	2 weeks
Debris Dam	**April 2016**	**6 months**
Modify Spillway	April 2016	2 months
Construct Buttresses	June 2016	2.5 months
Construct New Subdrain	August 2016	1 month
Remove/Construct Outlet Tower(s)	September 2016	2 weeks

Dam

Improvements at the Dam would include construction of a new spillway; removal and relocation of the jib crane and hoist; installation of new valves; installation of new electrical and control systems; reinforcement of the existing armoring at the toe of the Dam and downstream canyon walls; construction of the helipad; repair of concrete; improvements to the water distribution system; and installation of a new secured access gate and associated electrical connection. For the notch option, including demolition of the Dam Operators house and garage, site preparation and demolition would result in approximately 894 cubic yards of concrete export. Construction of the notch option and the helipad would require approximately 4,130 cubic yards of concrete import. The majority of the work on the actual Dam structure would be performed during the dry season (i.e., April 16 through October 15) when the water level is at the lowest, but dewatering of the reservoir is anticipated. A small coffer dam would be constructed within the Reservoir, where a temporary plastic bypass pipeline (sized to accommodate a certain flow dependent on the time

of year) would carry water around the work and into the sluiceway tunnel so that it can proceed downstream. The coffer dam would be approximately 50 feet wide, 8 feet high, and would span from bank to bank. If any construction activity coincides with rain events, small collection points may be required within the reservoir area footprint to ensure all water is diverted around the Dam during construction activities.

Headworks and Wilderness Park Culvert Crossing

Construction activities for the Headworks improvements would include demolition and removal of the existing facilities (i.e., concrete slab, wall, keys, catwalk, and tainter gate); installation of the rubber diversion structure; and reconstruction of the levee. Demolition of the existing facilities would result in approximately 73 cubic yards of concrete export. Approximately five cubic yards of metal would need to be removed as well. Reconstruction of the Headworks and installation of the new rubber diversion structure would require approximately 155 cubic yards of concrete import. Construction of the Wilderness Park Culvert Crossing would generate approximately 215 cubic yards of export materials and would require approximately 508 cubic yards of import material. While work at the Headworks would occur during the dry season, dewatering is anticipated. A small cofferdam would be constructed at the uppermost bounds of the existing impact area and a temporary plastic bypass pipeline (sized to accommodate a certain flow dependent on the time of year) would carry water either into the permanent diversion pipes or around the site to be discharged at the downstream limits of the Wilderness Park Culvert Crossing work area.

Debris Dam

Rehabilitation of the Debris Dam would include repair or replacement of the outlet tower; construction of new structural buttresses on both upstream and downstream sides of the embankment; and installation of a new outlet pipe under the new spillway. Site preparation would include demolition of the existing outlet tower and removal of the existing riprap exterior surface on portions of both the upstream and downstream slopes as well as the underlying engineered fill. Removal of the existing outlet tower would result in 80 cubic yards of concrete export, but most of the concrete from the tower would be reused on site. Approximately 65,000 cubic yards of fill material would be required for the new structural buttressing, as well as 1,000 cubic yards of concrete import for the new spillway buttress and outlet tower, and 2,500 cubic yards of base material import for the new subdrain system. It is anticipated that approximately half of the 65,000 cubic yards of fill material used for the structural buttressing will be obtained from the adjacent Santa Anita SPS, thereby reducing the number of trucks needed for the import of fill material.

Due to the proximity of residential homes, dust, erosion, and noise mitigation measures would be implemented to minimize adverse impacts. While the majority of work at the Debris Dam would occur during the dry season, dewatering is anticipated. A small cofferdam would be constructed within the Debris Basin and a temporary plastic bypass pipeline (sized to accommodate a certain flow dependent on the time of year) would carry water around the work to be discharged into the outlet pipe so that it can proceed downstream.

No construction activities are expected to occur within the City of Monrovia. However, temporary access/impact areas would be located within the City of Monrovia, including areas that may be subject to traversing vehicles or other mobile equipment, staging of equipment, placing stockpiles of soil, and excavating soil from the adjacent Sediment Placement Site for use in the buttressing backfill for the Debris Dam. No vegetation or tree removal would occur within the City of Monrovia. All of these activities would be limited to the LACFCD fee-owned right-of-way.

Construction Equipment and Workforce

Vehicular trips for workers and delivery trucks would vary depending on the phase of construction. During the peak of construction, a typical day would include the transportation of workers; movement of heavy equipment; and transportation of materials. An estimation of the construction worker and truck trips, broken down by construction phase, are shown in Table 3-2, Estimated Project Construction Equipment and Trip Generation.

TABLE 3-2
ESTIMATED PROJECT CONSTRUCTION EQUIPMENT AND TRIP GENERATION

Construction Phase	Off-Road Equipment	Worker Trips[a]	Truck Trips[a]
Dam			
Armor Canyon/Dam	1 Concrete Pump	3	500
Garage, Helipad, Water System	1 Concrete Pump, 1 Loader/Backhoe	5	10
Remove/Replace Jib Crane	1 Crane	3	5
Repair Concrete	1 Concrete Pump	3	5
Hoist	1 Crane	3	10
Construct New Spillway	1 Backhoe, 1 Concrete Pump, 1, Crane, 1 Loader, 1 Concrete Saw	8	56
Install Valves	1 Crane	3	5
Electrical	1 Crane	3	10
Headworks and Wilderness Park Culvert Crossing			
Headworks Demolition	1 Concrete Saw, 1 Excavator, 1 Backhoe	5	10
Rubber Dam	2 Backhoes	3	3
Construct Levee	1 Backhoe, 1 Concrete Pump	3	19
Culvert Crossing Demolition	1 Concrete Saw, 1 Excavator, 1 Backhoe	5	14
Site Clear/Grub	1 Backhoe	3	210
Grading/ Implement Temporary Access	2 Backhoes	5	--
Abutments and Wing Walls	2 Concrete Pumps	4	46
Construct Culvert Crossing Deck	1 Concrete Pump	3	18
Paving Culvert Crossing	1 Roller	3	15
Debris Dam			
Modify Spillway	1 Concrete Pump, 1 Concrete Saw, 1 Drilling Rig	4	63
Construct Buttresses[b]	1 Excavator, 1 Dozer, 1 Backhoe, 1 Loader, 1 Water Truck	5	4,063
Construct New Subdrain	2 Loaders	3	157
Remove Outlet Tower	2 Backhoes, 1 Water Truck	3	5

[a] All trips are round trips.
[b] The 4,063 number of trips was estimated based on 65,000 cubic yards of material required for the buttressing, assuming use of 16 cubic yard trucks occurring over 55 workdays (i.e. 2.5 months). Approximately half of this material (32,500 cubic yards) is estimated to be harvested from the adjacent Sediment Placement Site (SPS); therefore, the first 27 workdays (i.e. 5 weeks) of the sediment/fill truck trips would occur on-site between the SPS and the Debris Dam, and would not affect local residential roadways. Once fill from the SPS is exhausted, the remaining fill amount would be imported to the Debris Dam site, requiring off-site trucking for approximately 5 weeks.

3.3 PROJECT OPERATIONS AND MAINTENANCE

Once the Project is complete, there would be no long-term changes to the regular inspection and maintenance operations at the Santa Anita Dam, Headworks, or Debris Dam.

3.4 AGENCY APPROVALS AND PERMITS

3.4.1 REQUIRED APPROVALS AND PERMITS

This IS/MND is intended to serve as the primary environmental document pursuant to CEQA for actions associated with the Project, including discretionary approvals requested or required to implement the Project. In addition, this is the primary reference document for the formulation and implementation of a mitigation monitoring program for the Project. The Board, acting on behalf of the LACFCD, may adopt the IS/MND if it finds, on the basis of the whole Project record, that there is no substantial evidence the Project would have a significant effect on the environment. Table 3-3, Other Agency Approvals and Requirements, lists all agencies with permit or approval authority over the Project.

TABLE 3-3
OTHER AGENCY APPROVALS AND REQUIREMENTS

Agency	Approval Required	Applicable Project Component	Purpose
FAA	Heliport Certification	Dam	To authorize helipad at the Dam.
USACE	Section 404 Permit	All Project Components	To allow the discharge of dredge and fill material into "waters of the U.S.".
USACE	Section 408 Permit	Dam	To authorize alteration/modification to an existing USACE project.
USFS	Approval in accordance with Provision 3 of existing SUP	Dam	To authorize activities at the Dam within the Angeles National Forest.
CDFW	Section 1600 SAA	All Project Components	To authorize changes to the natural flow or bed, channel, or bank of any river, stream, or lake and associated impacts to biological resources.
Caltrans	Heliport Site Approval Permit	Dam	To authorize helipad at the Dam.
DSOD	Design Approval	Dam and Debris Dam	To ensure that the proposed improvements meet DSOD standards.
SWRCB	Construction General Permit	All Project Components	For coverage under the Construction General Permit.
RWQCB	Section 401 Water Quality Certification	All Project Components	To protect water quality within "waters of the U.S.".
Los Angeles County Department of Regional Planning – Airport Land Use Commission	Aviation Permit	Dam	To authorize helipad at the Dam.
City of Arcadia	Right of Entry	All Project Components	To access public property rather than just public right-of-way.

TABLE 3-3
OTHER AGENCY APPROVALS AND REQUIREMENTS

Agency	Approval Required	Applicable Project Component	Purpose
City of Arcadia	Oversized Load Permit	All Project Components	To allow for oversized trucks and equipment to be transported through City streets, if required.
City of Sierra Madre	Oversized Load Permit	All Project Components	To allow for oversized trucks and equipment to be transported through City streets, if required.

USACE: U.S. Army Corps of Engineers; USFS: U.S. Forest Service; SUP: Special Use Permit; FAA: Federal Aviation Administration; SWRCB: State Water Resources Control Board; DSOD: California Department of Water Resources, Division of Safety of Dams; RWQCB: Regional Water Quality Control Board; Caltrans: California Department of Transportation; CDFW: California Department of Fish and Wildlife; SAA: Streambed Alteration Agreement.

SECTION 4.0 ENVIRONMENTAL CHECKLIST FORM AND ASSESSMENT

This section includes the completed CEQA environmental checklist form, as provided in Appendix G of the State CEQA Guidelines, as well as substantiation and clarification for each checklist response. The checklist form is used to assist in evaluating the potential environmental impacts of the Santa Anita Stormwater Flood Management and Seismic Strengthening Project and identifies whether the Project is expected to have potential significant impacts.

1. Project Title:	Santa Anita Stormwater Flood Management and Seismic Strengthening Project
2. Lead Agency Name and Address:	Los Angeles County Flood Control District 900 South Fremont Avenue Alhambra, California 91803
3. Contact Person:	Mr. Matthew Frary, P.E. Water Resources Division damprojects@dpw.lacounty.org
4. Project Location:	The Project study area includes portions of the City of Arcadia, City of Monrovia, and U.S. Forest Service (USFS) land in the Western San Gabriel Valley in Los Angeles County, approximately 15 miles northeast of downtown Los Angeles.
5. Project Sponsor's Name and Address:	Los Angeles County Flood Control District 900 South Fremont Avenue Alhambra, California 91803
6. General Plan Designation/Zoning:	*USFS:* Back Country Motorized Use Restricted *City of Arcadia:* Public Facilities & Grounds/ Residential Mountainous *City of Monrovia:* Hillside Wilderness Area/Hillside Wilderness Preserve

7. Description of Project: The Project would modify existing flood management and water conservation facilities along the Santa Anita Canyon Watershed, including the Santa Anita Dam, the Santa Anita Headworks, the Wilderness Park Culvert Crossing, and the Santa Anita Debris Dam. The LACFCD facility improvements would: (1) reduce flood risk to downstream communities; (2) enhance sustainability of the local water supply and increase recharge to the groundwater basin by over 500 acre-feet per year; (3) improve all-weather access to the Arcadia Wilderness Park by constructing a new culvert crossing.

8. Surrounding land uses and setting: The Project area is located in Santa Anita Canyon at the southern margin of the San Gabriel Mountains. The Dam is at the north end of the Project area and is located within the Angeles National Forest. The Headworks structure is located approximately 0.5 mile downstream of the Dam on the border of the Angeles National Forest and the City of Arcadia. The Debris Dam is located approximately 0.5 mile downstream of the Headworks in the Cities of Arcadia and Monrovia. Land uses adjacent to the Project area include natural open space and the mountains within the Angeles National Forest (i.e., San Gabriel Mountains) to the north; the recreational and open space uses associated with the

City of Arcadia Wilderness Park and City of Monrovia to the east; and City of Arcadia single-family residential uses to the south and west.

9. Other public agencies whose approval may be required:

- Federal Aviation Administration (FAA)
- U.S. Army Corps of Engineers (USACE)
- U.S. Forest Service (USFS)
- California Department of Fish and Wildlife (CDFW)
- California Department of Transportation (Caltrans)
- California Department of Water Resources, Division of Safety of Dams (DSOD)
- California Water Resources Control Board (SWRCB)
- Los Angeles Regional Water Quality Control Board (RWQCB)
- Los Angeles County Department of Regional Planning - Airport Land Use Commission (ALUC)
- City of Arcadia
- City of Sierra Madre

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this Project, involving at least one impact that is a "Less Than Significant with Mitigation", as indicated on the following pages.

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

DETERMINATION:

On the basis of this initial evaluation:

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

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

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

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

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature of Lead Agency Representative

10/15/14
Date

Matthew J Frary
Printed name

Los Angeles County Flood Control District
Agency

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

4.1.1 EXISTING CONDITIONS

The Project area is located in the Santa Anita Canyon at the southern margin of the San Gabriel Mountains. The Dam is at the north end of the Project area and is located within the Angeles National Forest. The Headworks structure is located approximately 0.5 mile downstream of the Dam on the border of the Angeles National Forest and the City of Arcadia. The Debris Dam is located approximately 0.5 mile downstream of the Headworks in the Cities of Arcadia and Monrovia.

The Dam is accessed via a private road off Chantry Flats Road, approximately 2.5 miles north of the City of Arcadia. The Dam and Santa Anita Reservoir (Reservoir) can be viewed from portions of the Chantry Flats Road; from some hiking trails of the Angeles National Forest; and from publically accessible areas that are located above the Dam and Reservoir. The vegetation adjacent to the Reservoir contains chaparral and scrub that is characteristic of the foothills to the mountains in the Project vicinity. The downstream canyon walls are steep and armored with concrete. The area downstream of the Dam is a rocky creekbed with riparian habitat with scrub and willow species. An existing tunnel runs from the base of the reservoir through approximately 1,500 feet of a hillside to the east of the dam. The tunnel was installed in 1968 to accommodate a conveyor belt system to remove accumulated sediment from the bottom of Reservoir.

The Headworks structure is located approximately 0.5 mile downstream of the Dam on the border of the Angeles National Forest and the City of Arcadia and is accessed off Highland Oaks Drive and through the adjacent Wilderness Park. The Wilderness Park is a 120-acre nature preserve located below Big Santa Anita Canyon, which is owned and managed by the City of Arcadia. The Wilderness Park consists of an 8.5-acre passive recreation area, and the balance of the preserve remains in its natural state. The park includes a nature center, multi-purpose field, nature trails, a stream, picnic and barbeque areas, fire circle, and restrooms. The Headworks is generally not visible from the Wilderness Park due to a locked gate that prevents public access to the facility.

The Debris Dam embankment itself allows for vehicular access up to the spillway and can be accessed via a maintenance road that runs along the west side of the channel. The backyards of single-family residences located on Highland Oaks Drive line the western edge of the Debris Dam and basin, with the nearest property boundary approximately 200 to 400 feet away from the Debris

Dam spillway, where most of the construction will take place. To the east of the Debris Dam is City of Monrovia open space and to the south are the Santa Anita Spreading Grounds.

The *Arcadia General Plan* serves as the primary document regulating land use across the Project site. However, it does not contain specific goals or policies with regard to aesthetics of the LACFCD flood-control facilities that are associated with the Project. The General Plan recognizes LACFCD facilities in Arcadia south of the Wilderness Park as a "197-acre area for flood-control and debris disposal purposes that provides an important function in the region for water conservation". Chapter 6, Implementation and Monitoring, of the *Arcadia General Plan* includes a goal under the header "Respect Existing Views and Vistas" which states that "view corridors oriented toward existing or proposed community amenities, such as park, open space, or natural features, are to be enhanced" (Arcadia 2010b).

The *County of Los Angeles General Plan's* Conservation and Open Space Element describes various scenic resources that "contribute to tourism and the intellectual and emotional development of local inhabitants". These resources include the peaks of the San Gabriel and Santa Monica Mountains; the Antelope Valley floor; stands of trees that cover the higher slopes of the mountains; waters and beaches of the Pacific Ocean; historical and distinctive architecture; the downtown skyline; residential enclaves; and scenic drives. Policy 16 in this Element calls for the protection of the visual quality of scenic areas, including ridgelines and scenic views from public roads, trails, and key vantage points (LACDRP 1980).

The County's Scenic Highway Element calls for the development of a scenic highway system in the County through a corridor protection program and the design of roadways. The nearest adopted scenic highway is the Angeles Crest Highway (State Route [SR] 2), located approximately six miles north of the Dam (LACDRP 1980). SR-2 is also an "Officially Designated Scenic Highway" designated by the California Scenic Highway Mapping System (Caltrans 2012). The Project area is not visible from SR-2.

Under the Angeles National Forest's Land Management Plan (Forest Plan), the Dam is located in an area designated to have High Scenic Integrity Objectives. The Scenic Integrity Objectives relate to the natural appearance of an area. Areas with High Scenic Integrity include those where the natural landscape appears unaltered and human disturbance is not evident. Scenic integrity objectives can be achieved through the use of best environmental design practices to harmonize changes in the landscape and advance environmentally sustainable design solutions and by mitigating ground disturbance to maintain scenic integrity (USFS 2005b).

4.1.2 IMPACT ANALYSIS

Project Design Features

PDF AES-1 The material used to re-armor the downstream canyon walls and the toe of the Dam will match the color of the existing armoring.

Regulatory Requirements

None required.

Impact Discussion

a) Would the project have a substantial adverse effect on a scenic vista?

Less than Significant Impact. The Project site is not designated as a scenic vista in the General Plans for the City of Arcadia or the County of Los Angeles. According to the USFS Land Management Plan for the Angeles National Forest, the Dam is located within "The Front Country" of the forest, which is intended to be maintained as a "natural appearing landscape that functions as a first impression scenic backdrop for the Los Angeles/San Bernardino metropolitan area" (USFS 2005b). The Dam is not specifically discussed as a scenic resource. While the Project would not affect a designated scenic vista, public views of the Project site are available from portions of the Angeles National Forest, the Wilderness Park, and City of Monrovia open space to the east. Portions of the Project site are also visible from private residences along the western edge of the Debris Dam.

The short-term aesthetic impacts during construction due to temporary views of construction equipment and activities would be minimal. The Project involves improvements to existing stormwater flood-control facilities, and views into the Project site from public vantage points would not substantively change because the improvements would occur on existing facilities. Improvements would not result in substantially larger, taller, or substantively different flood-control facilities that could impact views of the surrounding natural hillsides or vegetation. Therefore, impacts to a scenic vista would be less than significant and no mitigation is required.

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

Less than Significant With Mitigation. As discussed, the nearest designated State scenic highway is SR-2, and the Project site would not be visible from SR-2 due to distance and the presence of intervening trees and mountainsides. However, the natural areas of the Project site, including the naturally vegetated open space areas and waters associated with Santa Anita Wash, would generally be considered scenic resources at the Project site and would be visible to the public at certain locations.

Based on site reconnaissance, topography/elevations, and review of aerial photographs, construction activities at the Dam have the potential to be visible from limited public locations along Santa Anita Canyon/Chantry Flats Road and hiking trails of the Angeles National Forest. The proposed improvements to the Dam would result in a temporary visual change to the existing conditions due to construction equipment and activities, and dewatering and elimination of the water body behind the Dam. The majority of the work would be performed during the dry season when the water level is at the lowest, but draining of the Reservoir is still anticipated. Dewatering of the Reservoir would temporarily expose underlying soils and allow for views of construction equipment. Public views of the Dam would be fleeting or partial views due to the fact that motorists would be driving and views from hiking trails at elevations above the Project construction area could be obstructed by vegetation and topography. Construction activities on the Dam, the helipad, and the dewatered Reservoir would be temporary visual impacts. The slightly altered configuration of the Dam spillway would be aesthetically consistent with the original visual character upon completion of the Project. As required by PDF AES-1, the material used to re-armor the downstream canyon walls and toe of the Dam would match the existing concrete to retain the visual character of the Dam.

Improvements to ancillary facilities at the Dam would also have visual impacts. The elimination of the Dam Operator's house and replacement with a helipad would result in a slight change to the buildings on the site, but would have no impact on scenic resources. The helipad would be

completely flat and elevated above grade by approximately four feet, but would not obscure any surrounding hillside views. Repair of the eroded slope near the upper tank would require grubbing of the existing vegetation. Removal of this approximately 216-square-foot (sf) area of vegetation would expose soils that are currently covered by dense vegetation and would result in a visual impact to anyone with a direct line of sight. However, the property is gated and not accessible to the general public. Additionally, views of this area from Chantry Flats Road are obscured by the topography and surrounding vegetation and the slope repair area is not anticipated to be visible to nearby viewers. Importantly, it is expected that the area would naturally revegetate over time through the geotextile fabric, which is designed to facilitate soil stability and vegetation establishment.

The installation of up to seven new power poles and attached power lines along the Dam access road would result in a visual change; however, the access road is not publically accessible and is located at a lower elevation than Chantry Flats Road, largely outside of the viewshed of passing motorists. The removal and replacement of the water lines at the Dam would generally follow the same alignment of the existing pipelines and there would be no visual change. While the existing swing gate would be replaced with a new sliding gate, the general size and visual form of the gate would remain the same. Therefore, impacts to scenic resources near the Dam would be less than significant.

The proposed improvements at the Headworks would not be visible from any public viewsheds, with the exception of a portion of the parking lot associated with the Wilderness Park. Reconstruction of the Headworks involves replacement of an existing structure in the same location and improvements to the associated levee and roadway. Although the new Headworks facility would be larger to accommodate the rubber diversion structure and small control house, no additional visually intrusive facilities would be constructed, and impacts to the scenic nature of the surrounding creek and vegetated areas would be negligible.

The construction activities associated with the replacement of the Wilderness Park Culvert Crossing would not be visible to visitors at the Wilderness Park because the park would be temporarily closed during construction. Therefore, there would be no public views of this construction activity. However, the replacement Wilderness Park Culvert Crossing would be viewed and used by visitors to the Wilderness Park. In order to accommodate the new Culvert Crossing structure, which would be wider than the existing crossing by approximately ten feet to better accommodate vehicular traffic, two existing sycamore trees located to the south and to the north of the Culvert Crossing on the eastern bank of the Wash may be removed. In order to provide a conservative analysis, this IS/MND assumes the removal of these trees. These trees are approximately 50 feet tall with large canopies that span portions of the Wash. Removal of these trees would result in an aesthetic change to the viewshed of visitors using the Culvert Crossing. This visual change includes a loss of the aesthetic of the mature trees and a reduction in shade along the Wash and the Wilderness Park Culvert Crossing; however, there are numerous mature trees surrounding the parking lot area and within the Wash. Although the sycamore trees are not protected by the City of Arcadia's Oak Tree Regulations, loss of these trees would constitute "substantial damage" to a scenic resource and would therefore be considered a significant impact.

As discussed in Section 3.4, Biological Resources, MM BIO-5 requires that impacts to jurisdictional resources be permitted through the applicable resource agencies. Because the sycamore trees are hydrologically connected to the creek, they would be subject to CDFW jurisdiction. CDFW requires mitigation for impacts to biological resources within their jurisdiction through a Streambed Alteration Agreement (SAA), which would include the vegetation and trees associated with the Wash. However, the SAA may not necessarily require on-site replacement of trees as part of the mitigation. In order to ensure that the two sycamore trees would be replaced

on site, MM AES-1 requires a minimum of 1:1 replacement of the trees within a 100-foot radius of the original location. Although any replacement trees associated with restoration and/or jurisdictional mitigation efforts would take years to reach the size and height of the existing trees, the long-term aesthetic benefit of these replacement trees would benefit the Project site in the future. Implementation of MM AES-1 would reduce potentially significant aesthetic impacts due to the loss of sycamore trees along the Wash to a less than significant level.

As part of the improvements at the Debris Dam, six existing, non-native deodar cedar trees located at the downstream toe of the embankment would need to be removed as mandated by DSOD to ensure the structural integrity of the Debris Dam. The DSOD cannot issue a new certificate for operation of the facility unless the trees are removed. The removal of these trees would result in a permanent visual change and affect views from the adjacent residences closest to the Debris Dam. The trees currently provide a visual buffer between the residences and the Debris Dam, which would be removed due to Project implementation. However, because these trees are not a prominent visual feature from public viewsheds, the removal of these trees would not constitute "substantial damage" to a scenic resource. Additionally, these trees are not protected species and the removal of these trees would not require any permits or replacement.

The scale and profile of the Debris Dam itself would be slightly altered due to the increased height of the spillway by four feet and the new structural buttressing along the upstream and downstream sides of the embankment. These changes to the Debris Dam may be visible from the backyards of the homes along the western edge of the Debris Dam, but are only alterations of the existing structure that will maintain the same function and aesthetic character. Reconstruction of the intake structure involves replacement of an existing structure in the same location and would have no long-term visual impact. Therefore, impacts associated with the loss of non-native, ornamental trees at the Debris Dam, improvements to the Debris Dam, and replacement of the intake structure would be less than significant and no mitigation is required.

c) Would the project substantially degrade the existing visual character or quality of the site and its surroundings?

Less Than Significant Impact. The overall visual character of the Project site would remain unchanged from the existing condition. This area has been historically used by the LACFCD for flood-control purposes and would continue to do so after implementation of the Project. The visual character of the site would not substantively change because the improvements would occur on existing facilities. Improvements would not result in significantly larger, taller, or substantively different flood-control facilities that could impact views of the surrounding natural hillsides or vegetation. Removal of select trees as discussed above would not constitute a substantial degradation to the visual character or quality of the site because the Project area's land uses and naturally vegetated character would not be substantively altered. Therefore, impacts to the existing visual character or quality of the site and its surroundings would be less than significant and no mitigation is required.

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

Less Than Significant Impact. Project-related activities would not introduce new sources of light or glare to the Project site or the surrounding area, with the exception of motion-sensor lighting at the new Dam entrance gate. No construction activities are proposed during the nighttime hours. The new lights on the Dam entrance gate would be compliant with the Dark Skies initiative, and no reflective paints or glare-inducing materials would be used. Therefore, impacts related to light and glare would be less than significant and no mitigation is required.

4.1.3 MITIGATION MEASURES

MM AES-1 Any removal of sycamore trees located at the Wilderness Park Culvert Crossing shall be replaced at a minimum 1:1 ratio with a minimum box size of 24 inches, within a 100-foot radius of their original location.

4.2 AGRICULTURE AND FOREST RESOURCES	Potentially Significant Impact	Less than Significant with Mitigation	Less than Significant Impact	No Impact
Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220[g]), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104[g])?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

4.2.1 EXISTING CONDITIONS

The Dam is located within the Angeles National Forest and is zoned as "Back Country Motorized Use Restricted" by the USFS Land Management Plan (USFS 2005b). The portions of the Project located within the City of Arcadia, including the Headworks and the Debris Dam, are designated by the *Arcadia General Plan* as Public Facilities and Grounds (P) (Arcadia 2010b). Current zoning for the site is Residential Mountainous (R-M), as defined by the City of Arcadia Zoning Code (Arcadia 2010a). The eastern slope of the Debris Dam that is located in the City of Monrovia is designated Hillside Wilderness Area in the General Plan and zoned as Hillside Wilderness Preserve (Monrovia 2012a).

The Project site does not currently support any agricultural uses or activities. Review of maps by the California Department of Conservation Farmland Mapping and Monitoring Program shows that the site is not designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, and there are no farmlands in the immediate Project area (FMMP 2011). In addition, there are no Williamson Act[3] contracts applicable to the Project site.

[3] The California Land Conservation Act of 1965 – commonly referred to as the Williamson Act – enables local governments to enter into contracts with private landowners for the purpose of restricting specific parcels of land to agricultural or related open space use. In return, landowners receive property tax assessments which are much lower than normal because they are based upon farming and open space uses as opposed to full market value.

4.2.2 IMPACT ANALYSIS

Regulatory Requirements

None required.

Impact Discussion

a) Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

b) Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?

No Impact. As discussed above, there are no agricultural activities or designated Farmland within or near the Project site. No farmland conversion or impacts to agricultural uses would occur with the Project. Also, the Project area is not zoned for agricultural use and there are no Williamson Act Contracts. Thus, no impacts on agricultural resources would occur.

c) Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code, Section 12220[g]), timberland (as defined by Public Resources Code, Section 4526), or timberland zoned Timberland Production (as defined by Government Code, Section 51104[g])?

d) Would the project result in the loss of forest land or conversion of forest land to non-forest use?

e) Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?

No Impact. As discussed above, the Dam is located within the Angeles National Forest and is zoned as "Back Country Motorized Use Restricted" by the USFS Land Management Plan (USFS 2005b). The Dam is operated under a Special Use Permit (SUP) from the USFS. As stated in RR USE-1, Provision 3 of the SUP states that any reconstruction plans to the Dam requires approval from the USFS to authorize the proposed improvements, but Project implementation would not conflict with forest lands or the forest uses in the surrounding area because all construction activities at the Dam would occur on the Dam structure and surrounding rock near the plunge pool area.

The Project would not change the use of the existing flood-control facilities and would not conflict with the natural character of this zone, as discussed in Section 4.10, Land Use and Planning. No conversion of forest land to non-forest use is proposed with the Project. Sediment removal would not induce the conversion of forest land to other uses because it is not a growth-inducing activity. The Project would comply with the conditions of the existing SUP issued by the USFS for the continued use of these LACFCD facilities. Thus, no impacts on forest resources would occur.

4.2.3 MITIGATION MEASURES

There would be no impacts to agriculture and forest resources; therefore, no mitigation measures are required.

4.3 AIR QUALITY	**Potentially Significant Impact**	**Less than Significant with Mitigation**	**Less than Significant Impact**	**No Impact**
Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒
b) Violate any air quality standard or contribute substantially to an existing or Projected air quality violation?	☐	☐	☒	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is in non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

Information in this section is derived from the *Air Quality and Greenhouse Gas Emissions Impact Analysis for the Santa Anita Stormwater Flood Management and Seismic Strengthening Project, County of Los Angeles, California* dated October 2014 and prepared by BonTerra Psomas. This report is provided in its entirety in Appendix A.

4.3.1 EXISTING CONDITIONS

The Project site is located within the Los Angeles County portion of the South Coast Air Basin (SoCAB) and, for air quality regulation and permitting, is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). Both the State of California (State) and the U.S. Environmental Protection Agency (USEPA) have established health-based Ambient Air Quality Standards (AAQS) for air pollutants, which are known as “criteria pollutants”. The AAQS are designed to protect the health and welfare of the populace within a reasonable margin of safety. The federal and State AAQS are shown in Table 4-1.

TABLE 4-1
CALIFORNIA AND NATIONAL AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	California Standards	Federal Standards	
			Primary[a]	Secondary[b]
O_3	1 Hour	0.09 ppm (180 µg/m^3)	–	–
	8 Hour	0.070 ppm (137 µg/m^3)	0.075 ppm (147 µg/m^3)	Same as Primary
PM10	24 Hour	50 µg/m^3	150 µg/m^3	Same as Primary
	AAM	20 µg/m^3	–	Same as Primary
PM2.5	24 Hour	–	35 µg/m^3	Same as Primary
	AAM	12 µg/m^3	12 µg/m^3	Same as Primary
CO	1 Hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	–
	8 Hour	9.0 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)	–
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)	–	–
NO_2	AAM	0.030 ppm (57 µg/m^3)	0.053 ppm (100 µg/m^3)	Same as Primary
	1 Hour	0.18 ppm (339 µg/m^3)	0.100 ppm (188 µg/m^3)	–
SO_2	24 Hour	0.04 ppm (105 µg/m^3)	–	–
	3 Hour	–	–	0.5 ppm (1,300 µg/m^3)
	1 Hour	0.25 ppm (655 µg/m^3)	0.075 ppm (196 µg/m^3)	–
Lead	30-day Avg.	1.5 µg/m^3	–	–
	Calendar Quarter	–	1.5 µg/m^3	Same as Primary
	Rolling 3-month Avg.	–	0.15 µg/m^3	
Visibility Reducing Particles	8 hour	Extinction coefficient of 0.23 per km – visibility ≥ 10 miles (0.07 per km – ≥30 miles for Lake Tahoe)	**No Federal Standards**	
Sulfates	24 Hour	25 µg/m^3		
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)		
Vinyl Chloride	24 Hour	0.01 ppm (26 µg/m^3)		

O_3: ozone; ppm: parts per million; µg/m^3: micrograms per cubic meter; PM10: respirable particulate matter with a diameter of 10 microns or less; AAM: Annual Arithmetic Mean; PM2.5: fine particulate matter with a diameter of 2.5 microns or less; CO: carbon monoxide; mg/m^3: milligrams per cubic meter; NO_2: nitrogen dioxide; SO_2: sulfur dioxide; km: kilometer; –: No Standard.

[a] *National Primary Standards:* The levels of air quality necessary, within an adequate margin of safety, to protect the public health.
[b] *National Secondary Standards:* The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

Note: More detailed information in the data presented in this table can be found at the CARB website (www.arb.ca.gov).

Source: BonTerra Psomas 2014a (Appendix A).

Regional air quality is defined by whether the area has attained or not attained State and federal air quality standards, as determined by air quality data from various monitoring stations. Areas that are considered in "nonattainment" are required to prepare plans and implement measures that will bring the region into "attainment". When an area has been reclassified from nonattainment

to attainment for a federal standard, the status is identified as "maintenance", and there must be a plan and measures established that will keep the region in attainment for the following ten years.

For the California Air Resources Board (CARB), an "Unclassified" designation indicates that the air quality data for the area are incomplete and there are no standards to support a designation of attainment or nonattainment. Table 4-2 summarizes the attainment status of the SoCAB for the criteria pollutants.

TABLE 4-2
DESIGNATIONS OF CRITERIA POLLUTANTS IN THE SOUTH COAST AIR BASIN

Pollutant	State	Federal
O_3 (1-hour)	Nonattainment	No Standard
O_3 (8-hour)		Extreme Nonattainment
PM10	Nonattainment	Attainment/Maintenance[a]
PM2.5	Nonattainment	Nonattainment
CO	Attainment	Attainment/Maintenance
NO_2	Attainment[b]	Attainment/Maintenance
SO_2	Attainment	Attainment
Lead	Attainment[b]	Nonattainment/Attainment[c]
All others	Attainment/Unclassified	No Standards

O_3: ozone; PM10: respirable particulate matter with a diameter of 10 microns or less; PM2.5: fine particulate matter with a diameter of 2.5 microns or less; CO: carbon monoxide; NO_2: nitrogen dioxide; SO_2: sulfur dioxide.

[a] Federal standard: The SoCAB was redesignated for PM10 from nonattainment to attainment-maintenance effective July 26, 2013.
[b] State standard: CARB Executive Order R-14-001 of February 25, 2014 reclassified the SoCAB to Attainment for NO_2 and Los Angeles County to Attainment for Lead effective July 1, 2014.
[c.] Federal Standard: Los Angeles County is classified as nonattainment for lead; the remainder of the SoCAB is in attainment.

Source: BonTerra Psomas 2014a (Appendix A).

4.3.2 IMPACT ANALYSIS

Regulatory Requirements

RR AQ-1 All construction activities shall be conducted in compliance with South Coast Air Quality Management District Rule 403, Fugitive Dust, for controlling fugitive dust and avoiding nuisance. Compliance with this rule will reduce short-term particulate pollutant emissions. Contractor compliance with Rule 403 requirements shall be mandated in the contractor's specifications.

RR AQ-2 All construction activities shall be conducted in compliance with South Coast Air Quality Management District Rule 402, Nuisance, which states that a Project shall not "discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property".

Impact Discussion

a) Would the project conflict with or obstruct implementation of the applicable air quality plan?

No Impact. The project is located in Los Angeles County, in the South Coast Air Basin (SoCAB), where the South Coast Air Quality Management District (SCAQMD) is the agency principally responsible for comprehensive air pollution control. A regional agency, the SCAQMD works directly with the Southern California Association of Governments (SCAG), County transportation commissions, and local governments, and cooperates actively with all federal and State government agencies. The SCAQMD develops rules and regulations; establishes permitting requirements for stationary sources; inspects emissions sources; and enforces such measures through educational programs or fines, when necessary.

The SCAQMD is directly responsible for reducing emissions from stationary (area and point), mobile, and indirect sources. It has responded to this requirement by preparing a sequence of Air Quality Management Plans (AQMPs). An AQMP establishes a program of rules and regulations directed at attaining the National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS). The regional plan applicable to the Project is the SCAQMD's AQMP.

On December 7, 2012, the SCAQMD adopted the 2012 AQMP, which is a regional and multi-agency effort (SCAQMD, CARB, SCAG, and USEPA). The 2012 AQMP incorporates the latest scientific and technical information and planning assumptions, including the 2012 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS); updated emission inventory methodologies for various source categories; and SCAG's latest growth forecasts (SCAQMD 2013a). On December 20, 2012, the 2012 AQMP was submitted to CARB and the USEPA for concurrent review and approval for inclusion in the SIP (SCAQMD 2013a). The 2012 AQMP was approved by the CARB on January 25, 2013 (CARB 2013).

The main purpose of an AQMP is to bring an area into compliance with the requirements of federal and State air quality standards. For a project to be consistent with the AQMP, the pollutants emitted from the project should not (1) exceed the SCAQMD CEQA air quality significance thresholds or (2) conflict with or exceed the assumptions in the AQMP. As shown in Threshold 4.3(b) below, pollutant emissions from the Project would be less than the SCAQMD thresholds and would not result in a significant impact. Further, the Project, being structural improvements to existing facilities without changes in operations, would not result in development that may not have been anticipated in the AQMP. No conflict with the 2012 AQMP would occur with the Project (BonTerra Psomas 2014a).

b) Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Less than Significant Impact. The SCAQMD establishes significance thresholds to assess the regional impact of Project-related air pollutant emissions in the SCAQMD. Table 4-3, SCAQMD Criteria Pollutant Mass Emissions Significance Thresholds, summarizes the SCAQMD's mass emissions thresholds, which are presented for both long-term operational and short-term construction emissions. A Project with emissions rates below these thresholds is considered to have a less than significant effect on air quality.

TABLE 4-3
SCAQMD CRITERIA POLLUTANT SIGNIFICANT MASS EMISSIONS SIGNIFICANCE THRESHOLDS (LBS/DAY)

Criteria Pollutant	Construction	Operation
Volatile Organic Compounds (VOC)	75	55
Oxides of Nitrogen (NOx)	100	55
Carbon Monoxide (CO)	550	550
Oxides of Sulfur (Sox)	150	150
Particulate Matter (PM10)	150	150
Particulate Matter (PM2.5)	55	55
Source: BonTerra Psomas 2014a (Appendix A).		

Regional Construction Impacts

The SCAQMD has established methodologies to quantify air emissions associated with construction activities such as air pollutant emissions generated by operation of on-site construction equipment; fugitive dust emissions related to trenching and earthwork activities; and mobile (tailpipe) emissions from construction worker vehicles and haul/delivery truck trips. Emissions would vary from day to day, depending on the level of activity; the specific type of construction activity occurring; and, for fugitive dust, prevailing weather conditions.

A construction-period mass emissions inventory was compiled based on an estimate of construction equipment as well as scheduling and Project phasing assumptions. More specifically, the mass emissions analysis takes into account the following:

- Combustion emissions from operating on-site stationary and mobile construction equipment;
- Fugitive dust emissions from demolition, site preparation, and grading phases; and
- Mobile-source combustion emissions and fugitive dust from worker commute and truck travel.

For the purposes of estimating emissions associated with construction activities, a timeframe of December 2015 through October 2016 was applied to the analysis. Emissions were calculated using the California Emissions Estimator Model (CalEEMod) emissions inventory model (SCAQMD 2013b). CalEEMod is a computer program accepted by the SCAQMD that can be used to estimate anticipated emissions associated with land development projects in California. CalEEMod has separate databases for specific counties and air districts, and the Los Angeles County database was used for the Project. Dust control by watering was assumed, consistent with the requirements of SCAQMD Rule 403 (RR AQ-1).

The mass emissions thresholds (see Table 4-3) are based on the rate of emissions (i.e., pounds of pollutants emitted per day). Therefore, the quantity, duration, and the intensity of construction activity are important in assuring analysis of worst case (i.e., maximum daily emissions) scenarios. The Project activities (e.g., demolition, grading, building) are identified by start date and duration, as described in Table 3-1. Each activity has associated off-road equipment (e.g., dozers, backhoes, cranes) and on-road vehicles (e.g., haul trucks, concrete trucks, worker commute vehicles), as described in Table 3-2. Maximum daily emissions for the peak work day are shown in Table 4-4, Estimated Maximum Daily Construction Emissions.

TABLE 4-4
ESTIMATED MAXIMUM DAILY CONSTRUCTION EMISSIONS
(LBS/DAY)

	VOC	NOx	CO	SOx	PM10	PM2.5
Maximum daily emissions in 2015	4	46	35	<0.5	3	2
Maximum daily emissions in 2016	8	92	73	<0.5	9	5
SCAQMD Daily Thresholds	***75***	***100***	***550***	***150***	***150***	***55***
Exceeds SCAQMD Thresholds?	**No**	**No**	**No**	**No**	**No**	**No**

lbs/day: pounds per day; VOC: volatile organic compound(s); NOx: nitrogen oxides; CO: carbon monoxide; SOx: sulfur oxides; PM10: respirable particulate matter with a diameter of 10 microns or less; PM2.5: fine particulate matter with a diameter of 2.5 microns or less

Source: BonTerra Psomas 2014a (Appendix A).

Based on the anticipated Project phasing and equipment, the estimated peak day (worst case) emissions of all pollutants—VOC, NOx, CO, PM10, and PM2.5—would occur during the approximate one month period in 2016 when construction of the Dam spillway is assumed to be concurrent with construction of the Debris Dam buttresses and the construction of the Culvert Crossing abutments and wing walls. This scenario, which represents the overlap of activities that would result in the reasonably worst case for NOx emissions, is detailed below:

Dam Spillway

- *Off-road equipment:* 1, backhoe, 1 concrete pump, 1 crane, 1 loader, 1 concrete saw
- *On-road equipment:* 56 concrete/material truck round trips over a 6-month period
- *Worker trips:* 8 daily round trips

Culvert Crossing Abutments and Wing Walls

- *Off-road equipment:* 2 concrete pumps
- *On-road equipment:* 46 material truck round trips in a one month period
- *Worker trips:* 4 daily round trips

Debris Dam Buttresses

- *Off-road equipment:* 1 excavator, 1 dozer, 1 backhoe, 1 loader, 1 water truck
- *On-road equipment:* 4,063 material truck round trips over a 2 ½ month period
- *Worker trips:* 5 daily round trips

Actual emissions could be less than shown in Table 4-4 if construction activities are delayed or occur over a longer durations than planned, because of (1) a more modern and cleaner-burning construction equipment fleet mix and/or (2) a less intensive buildout schedule (e.g., fewer daily emissions if truck trips occur over a longer time interval). As shown in Table 4-4, all criteria pollutant emissions would be less than their respective thresholds. Thus, impacts would be less than significant and no mitigation is required.

Localized Construction Impacts

The localized effects from the on-site portion of daily emissions were evaluated at sensitive receptor locations potentially impacted by the Project according to the SCAQMD's localized significance threshold (LST) methodology, which utilizes on-site mass emissions rate look up tables and Project-specific modeling, where appropriate. LSTs are applicable to the following criteria pollutants: NO_2, CO, PM10, and PM2.5.[4] LSTs represent the maximum emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable federal or State ambient air quality standard, and are developed based on the ambient concentrations of that pollutant for each source receptor area and distance to the nearest sensitive receptor. For PM10 and PM2.5, LSTs were derived based on requirements in SCAQMD Rule 403, Fugitive Dust (RR AQ-1). The mass rate look-up tables were developed for each source receptor area and can be used to determine whether or not a project may generate significant adverse localized air quality impacts. The SCAQMD provides LST mass rate look-up tables for projects that are less than or equal to five acres. For projects that exceed five acres, the five-acre LST look-up values can be used as a screening tool to determine which pollutants require detailed analysis. This approach is conservative as it assumes that all on-site emissions would occur within a five-acre area and would over predict potential localized impacts (i.e., more pollutant emissions occurring within a smaller area and within closer proximity to potential sensitive receptors).

When quantifying mass emissions for localized analysis, only emissions that occur on site are considered. Consistent with the SCAQMD's LST methodology guidelines, emissions related to off-site delivery/haul truck activity and employee trips are not considered in the evaluation of localized impacts. For the Project, localized impacts are not analyzed for the Dam because it is in a remote location with no off-site receptors in the vicinity. Localized impacts are not evaluated for the Headworks since the nearest residences are approximately 550 feet southwest of the Headworks; since there is no line of sight from the Headworks to these residences because of steep cliffs adjacent to the west and southwest of the Headworks; and since there is substantial vegetative growth between the Headworks and these homes. Localized impacts are analyzed separately for the Wilderness Park Culvert Crossing and the Debris Dam because they are geographically separate and because pollutants would not impact common receptors.

Maximum local emissions would occur during the peak on-site activity. At the Wilderness Park Culvert Crossing, the peak on-site activity would occur during the removal of the existing crossing. At the Debris Dam, the peak on-site activity would occur during construction of the embankment buttressing. The LSTs for a 1-acre site with receptors at a distance of 25 meters were used; these are the most conservative thresholds. The results of the LST analysis are in Table 4-5, Maximum Localized Construction Pollutant Emissions. As shown in Table 4-5, localized emissions for all criteria pollutants would be less than their respective SCAQMD LSTs for all pollutants. Thus, impacts would be less than significant and no mitigation is required.

[4] NO_2 impacts are addressed by evaluating nitrogen oxide (NOx) emissions.

TABLE 4-5
MAXIMUM LOCALIZED CONSTRUCTION POLLUTANT EMISSIONS
(LBS/DAY)

	NOx	CO	PM10	PM2.5
Wilderness Park Culvert Crossing	11	8	1	1
Debris Dam	19	14	3	2
SCAQMD LSTs	***89***	***623***	***5***	***3***
Exceeds SCAQMD Thresholds?	**No**	**No**	**No**	**No**

lbs/day: pounds per day; NOx: nitrogen oxides; CO: carbon monoxide; PM10: respirable particulate matter with a diameter of 10 microns or less; PM2.5: fine particulate matter with a diameter of 2.5 microns or less;

Source: BonTerra Psomas 2014a (Appendix A).

Toxic Air Contaminants Impacts

The greatest potential for toxic air contaminant (TAC) emissions during construction would be related to diesel particulate emissions associated with heavy equipment operations during site grading activities. The SCAQMD does not consider diesel-related cancer risks from construction equipment to be an issue due to the short-term nature of construction activities. Construction activities associated with the Project would be short term (no more than 1.5 years). The assessment of cancer risk is typically based on a 70-year exposure period. Because exposure to diesel exhaust would be well below the 70-year exposure period, construction of the Project is not anticipated to result in an elevated cancer risk to exposed persons due to the short-term nature of construction. As such, Project-related toxic emission impacts during construction would be less than significant and no mitigation is required (BonTerra Psomas 2014a).

Regional and Local Operational Impacts

Once the Project is complete, there would be no long-term changes to the regular inspection and maintenance operations at the Dam, Headworks, or Debris Dam. The helipad at the Dam would be used only in the event of an emergency. It is expected that helipad operations would only result in one or two helicopter trips per year. Therefore, any Project-generated change in emissions would be nominal. Impacts from regional mass emissions and local on-site emissions would be less than significant (BonTerra Psomas 2014a).

c) Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

Less than Significant Impact. The SCAQMD's approach for assessing cumulative impacts is based on the AQMP forecasts of attainment of ambient air quality standards in accordance with the requirements of the Federal and State Clean Air Acts. As discussed earlier in Threshold 4.3(a), the Project would be consistent with the AQMP, which is intended to bring the SoCAB into attainment for all criteria pollutants.[5] In addition, the mass regional emissions calculated for the

[5] Section 15064(h)(3) of the State CEQA Guidelines states "A lead agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project will comply with the requirements in a previously approved plan or mitigation program which provides specific requirements that will avoid or substantially lessen the cumulative problem (e.g., water quality control plan, air quality plan, integrated waste management plan) within the geographic area in which the project is located. Such plans or programs must be specified in law or adopted by the public agency with jurisdiction over the affected resources through a public review process to implement, interpret, or make specific the law enforced or administered by the public agency".

Project (Table 4-5) would be lower than the applicable SCAQMD daily significance thresholds that are designed to assist the region in attaining the applicable State and national ambient air quality standards. With regard to cumulative local impacts due to concurrent construction activities of related projects, there are no projects currently active or proposed within the local vicinity, as described in Section 4.17, Mandatory Findings of Significance. As such, cumulative impacts would be less than significant and no mitigation is required.

d) Would the project expose sensitive receptors to substantial pollutant concentrations?

Less than Significant Impact. As described in Threshold 4.3(b), the Project would not result in any substantial TAC air pollution impacts, and construction criteria pollutant emissions would be less than the conservative LST. Therefore, Project construction would not expose any nearby sensitive receptors to substantial pollutant concentrations. As such, the Project would have a less than significant impact no mitigation is required.

A CO hotspot is an area of localized CO pollution that is caused by severe vehicle congestion on major roadways, typically near intersections. If a project increases average delay at signalized intersections operating at level of service (LOS) E or F or causes an intersection that would operate at LOS D or better without the project to operate at LOS E or F with the project, there is a potential for a CO hotspot. The Project is not expected to generate new traffic during construction or operations that would exceed LOS E of F along the primary haul routes (see Section 4.16). Therefore, the Project would not increase congestion at major signalized intersections. There would be no impact and no exposure of sensitive receptors to Project-generated local CO emissions (BonTerra Psomas 2014a).

e) Would the project create objectionable odors affecting a substantial number of people?

Less Than Significant Impact. According to the SCAQMD's *CEQA Air Quality Handbook,* land uses associated with odor complaints typically include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding (SCAQMD 1993). The Project does not include any uses identified by the SCAQMD as being associated with odors and therefore would not produce objectionable long-term operational odors.

Short-term Project construction equipment and activities would generate odors. Potential construction odors include diesel exhaust emissions, and paving activities. There may be situations where construction activity odors will be noticeable by persons working at or visiting nearby facilities, but these odors would not be unfamiliar or necessarily objectionable. The odors would be temporary and would dissipate rapidly from the source with an increase in distance. Therefore, the impacts would be short-term; would not be objectionable to a substantial number of people; and would be less than significant. All Project-related actions are construction related and short-term, and no long-term operational odors would be created. As such, the Project would have no impact in regards to objectionable odors.

4.3.3 MITIGATION MEASURES

There would be no significant adverse impacts relating to air quality; therefore, no mitigation measures are required.

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

Information in this section is derived from the *Biological Technical Report for the Santa Anita Stormwater Flood Management and Seismic Strengthening Project, County of Los Angeles, California* dated October 2014 and prepared by BonTerra Psomas. This report, along with all focused survey reports, Tree Survey Report, and the Jurisdictional Delineation Report, is provided in its entirety in Appendix B.

4.4.1 EXISTING CONDITIONS

The study area for the Project extends from the Dam along Santa Anita Canyon downstream to the Debris Dam. The study area supports a variety of plant and wildlife species that are described below.

Vegetation Types

Twenty vegetation types and other areas (i.e., unvegetated areas that were mapped) occur in the study area and are described in Exhibit 4-1, Vegetation Map. Where vegetation overlaps another type of mapping unit (e.g., a tree canopy over water or roads), the area was mapped according to the uppermost canopy of vegetation. Nomenclature for vegetation types generally follows that of *The Vegetation Classification and Mapping Program: List of California Terrestrial Natural Communities Recognized by the California Natural Diversity Database*.

Mixed Coastal Sage Scrub: Mixed coastal sage scrub occurs in the northern portion of the study area above the Dam, in the upper portion of the Debris Dam, and east of the Debris Dam. This vegetation type is dominated by California sagebrush (*Artemisia californica*) and California buckwheat (*Eriogonum fasciculatum*) in most areas with a diversity of shrub species varying from the northern portion of the study area to the southern portion of the study area. The variation is due to the elevation range and steepness of the slopes in which the vegetation is growing. In the large wash area below the Wilderness Park, the mixed sage scrub also contains components that could fit in an alluvial sage scrub category and includes western sycamore and scale-broom (*Lepidospartum squamatum*).

Disturbed Mixed Coastal Sage Scrub: Disturbed mixed coastal sage scrub occurs in the northern portion of the study area along the spur road to the Dam, downslope of the spur road, and along the dirt road south of the Wilderness Park. These areas have been disturbed by their proximity to the road (e.g., non-native species are sometimes spread by vehicles, or non-native species become established at the disturbed edge of the roadway and spread into the adjacent vegetation). These areas are dominated by shrub species similar to those described above under mixed coastal sage scrub; however there is a large percentage of non-native species present, including crimson fountain grass (*Pennisetum setaceum*), shortpod mustard (*Hirschfeldia incana*), and ripgut brome (*Bromus diandrus*).

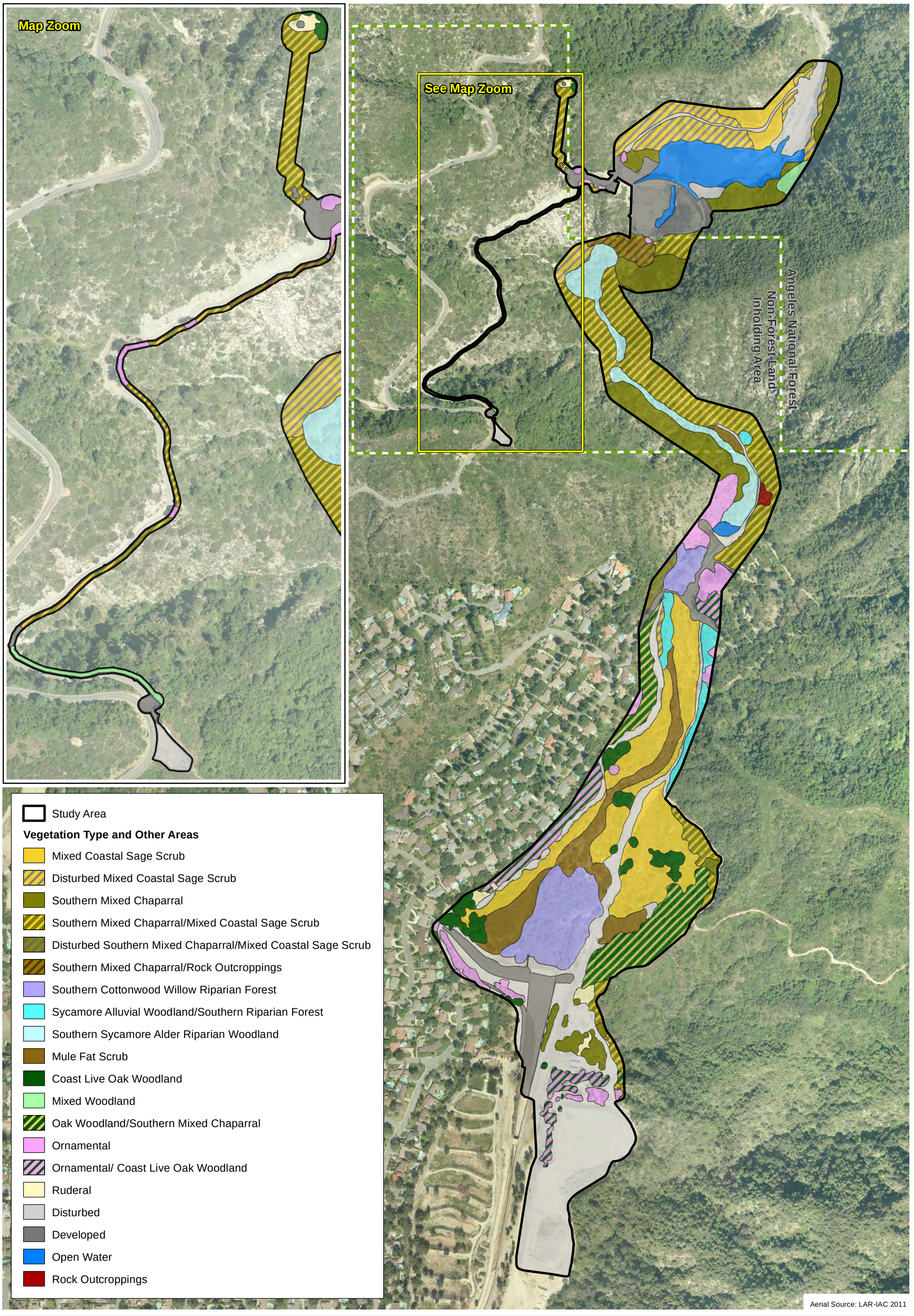
Southern Mixed Chaparral: Southern mixed chaparral occurs throughout the steep slopes of the study area mostly north of the Headworks facility and the Wilderness Park; it also occurs east of the Debris Dam. This vegetation is dominated by larger evergreen native shrubs, including laurel sumac (*Malosma laurina*), sugar bush (*Rhus ovata*), birch-leaved mountain mahogany (*Cercocarpus betuloides*), holly-leaved redberry (*Rhamnus crocea*), blue elderberry (*Sambucus nigra* ssp. *caerulea* [*S. mexicana*]), holly-leaved cherry (*Prunus ilicifolia*), Our Lord's candle (*Hesperoyucca whipplei* [*Yucca whipplei*]), toyon (*Heteromeles arbutifolia*), and heart-leaved penstemmon (*Keckiella cordifolia*). A few areas also contain chamise (*Adenostoma fasciculatum*), coast live oak (*Quercus agrifolia*), and canyon live oak (*Quercus chrysolepis*).

Southern Mixed Chaparral/Mixed Coastal Sage Scrub: Southern mixed chaparral/mixed coastal sage scrub occurs primarily on the steep slopes along Santa Anita Canyon between the Dam and the Headworks facility, and east of the Debris Dam. This vegetation type is a mixture of native species described above in southern mixed chaparral and mixed coastal sage scrub. The dominant species include laurel sumac, California sagebrush, sugar bush, California buckwheat, black sage (*Salvia mellifera*), white sage (*Salvia apiana*), and Our Lord's candle.

Disturbed Southern Mixed Chaparral/Mixed Coastal Sage Scrub: Disturbed southern mixed chaparral/mixed coastal sage scrub occurs in an area just south of the Headworks facility. This area is dominated by shrub species similar to those mentioned for southern mixed chaparral/mixed coastal sage scrub, including laurel sumac, California sagebrush, California buckwheat, black sage, and white sage. However, there is a large percentage of non-native species present, including crimson fountain grass, shortpod mustard, and ripgut grass.

Southern Mixed Chaparral/Rock Outcroppings: The southern mixed chaparral/rock outcroppings vegetation type occurs in an area just downstream of the Dam along Santa Anita Canyon. These areas are very steep with large rock outcroppings and cliff faces and contain an open mixed chaparral comprised of toyon, sugar bush, and chamise. There are club mosses and dudleyas (*Dudleya* spp.) present on these cliff faces.

Southern Cottonwood Willow Riparian Forest: The southern cottonwood willow riparian forest occurs downstream of the Headworks facility and in the Debris Dam. This vegetation type is dominated by a mix of arroyo willow (*Salix lasiolepis*) and Goodding's black willow (*Salix*



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Vegetation Map

Exhibit 4-1

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

N W E S

550 275 0 550 Feet

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gooddingii). A few scattered white alder (*Alnus rhombifolia*) and Fremont cottonwood (*Populus fremontii* ssp. *fremontii*) are also present.

Sycamore Alluvial Woodland/Southern Riparian Forest: Sycamore alluvial woodland/southern riparian forest occurs in the southern portion of the study area south of the Wilderness Park and on the northeastern edge of the Debris Dam. These areas are fed by the creek, but are drier and more upland in composition. The species present include large western sycamore, mule fat (*Baccharis salicifolia*), California buckwheat, and California sagebrush.

Southern Sycamore Alder Riparian Woodland: Southern sycamore alder riparian woodland is the dominant riparian vegetation type along Santa Anita Canyon between the Dam and the Headworks facility. This area is dominated by a mix of mature trees, including California sycamore and white alder.

Mule Fat Scrub: Mule fat scrub occurs primarily along the active channel in the upper and middle portions of the Debris Dam, at the lower end of the basin, and on the terrace east of the Debris Dam. Large boulders are present within this vegetation type along the upper portion of the basin.

Coast Live Oak Woodland: Stands of coast live oak and Engelmann oak (*Quercus engelmannii*) individuals occur in on the outer edges of the Debris Dam in the study area.

Mixed Woodland: Mixed woodland occurs north of the Dam on a steep east-facing slope. This area is comprised of large native trees including California bay (*Umbellularia californica*) and big-leafed maple (*Acer macrophyllum*), with a chaparral species in the understory.

Oak Woodland/Southern Mixed Chaparral: Oak woodland/southern mixed chaparral occurs on the northwest (adjacent to the homes) and southeast sides of the Debris Dam. This vegetation type consists of coast live oak, Engelmann oak, and scrub oak (*Quercus berberidifolia*) trees with a diverse mix of species in the understory. Chaparral species present in the understory commonly include laurel sumac, blue elderberry, and toyon.

Ornamental: Ornamental vegetation occurs primarily near the Headworks facility and adjacent to the residential areas and maintenance facilities in the Wilderness Park. These areas contain non-native species planted for aesthetic purposes. The slope near the Headworks facility is dominated by crimson fountain grass. Dominant planted species in this vegetation type include oleander (*Nerium oleander*), gum (*Eucalyptu*s sp.), and Canary Island pine (*Pinus canariensis).*

Ornamental/Coast Live Oak Woodland: Ornamental/coast live oak woodland occurs in the Wilderness Park, along the residences west of the Debris Dam, and north and west of the Sediment Placement Site. In these areas, ornamental species (e.g., Canary Island pine) are planted among the existing native coast live oak.

Ruderal: Ruderal vegetation occurs in a few small areas north of the Santa Anita Reservoir and in the upland areas east and west of the Debris Dam. These areas are dominated by non-native vegetation, predominantly comprised of short-pod mustard with scattered non-native grasses including ripgut grass.

Disturbed: Disturbed areas occur throughout the study area and consist of dirt roads around the Dam, Headworks facility, Debris Dam, and Sediment Placement Site. These areas also include the area that recently underwent sediment removal within the upper portion of Santa Anita Reservoir. Disturbed areas consist of bare ground and contain little to no vegetation.

Developed: Developed areas occur at the Dam, Headworks facility, and Debris Dam. These areas include paved roads, residential areas, dams, and other structures. These areas do not contain vegetation or other landscaping (developed areas that contain landscaping were mapped as "ornamental").

Open Water: Open water is mapped within Santa Anita Reservoir, at the base of the Dam and adjacent to the Headworks facility. It should be noted that open water also occurs along Santa Anita Canyon, but is a component of the other riparian vegetation types mapped along the canyon. Open water is mapped in areas that do not contain emergent vegetation or a tree canopy. The extent of open water varies based on the rainfall conditions of the year, time of year, and (in the lower portions of the study area) the amount of water being released from the Dam. The mapping represents the extent on the day the vegetation was mapped in April 2012; the extent of open water in recent years is less than shown on the map since the area has received lower than average rainfall in 2013 and 2014.

Rock Outcroppings: Rock outcroppings occur in an area along Santa Anita Canyon, upstream of the Headworks facility. The rock outcroppings are on cliff faces or are at the base of the cliffs. They generally lack vegetation, likely due to the steep cliff slopes and continuous erosion of the rock faces; however, a few of the rock outcroppings contain dudleyas.

Wildlife

The Project area is comprised primarily of native habitats and provides suitable habitat for several wildlife species. Common wildlife species observed or expected to occur in the study area are discussed below.

Two fish species were observed in the study area during the surveys: rainbow trout (*Onocorhynchus mykiss*), a native game fish, and green sunfish (*Lepomis cyanellus*), a non-native species. Four rainbow trout, averaging approximately 6 inches in length, were observed in the large pool (15 feet wide by 30 feet long by 6 feet deep) below the Headworks facility. Rainbow trout were stocked in this stream system from 1930 to 1945, and likely continue to reproduce when conditions are favorable. Approximately ten green sunfish were also observed in the pool below the Headworks facility; a range of size classes were observed, indicating that the species is actively reproducing.

Suitable habitat for amphibians is present throughout the Project area. Three native amphibian species were observed during the surveys, including California [western] toad (*Anaxyrus boreas halophilus* [*Bufo boreas*]), California treefrog (*Pseudacris* [*Hyla*] *cadaverina*), and Baja California treefrog (*Pseudacris hypochondriaca* [*Hyla regilla*]).

Reptile species observed in the study area include western fence lizard (*Sceloporus occidentalis*), side-blotched lizard (*Uta stansburiana*), western whiptail (*Cnemidophorus tigris*), southern alligator lizard (*Elgaria multicarinata*), two-striped garter snake, gopher snake (*Pituophis catenifer*), and western rattlesnake (*Crotalus viridis*).

The following resident bird species were observed: great blue heron (*Ardea herodias*), killdeer (*Charadrius vociferus*), mourning dove (*Zenaida macroura*), Anna's hummingbird (*Calypte anna*), Nuttall's woodpecker (*Picoides nuttallii*), black phoebe (*Sayornis nigricans*), American crow (*Corvus brachyrhynchos*), common raven (*Corvus corax*), bushtit (*Psaltriparus minimus*), house wren (*Troglodytes aedon*), northern mockingbird (*Mimus polyglottos*), European starling (*Sturnus vulgaris*), common yellowthroat (*Geothlypis trichas*), spotted towhee (*Pipilo maculatus*), California towhee (*Melozone* [*Pipilo*] *crissalis*), song sparrow (*Melospiza melodia*), house finch (*Carpodacus mexicanus*), and lesser goldfinch (*Spinus* [*Carduelis*] *psaltria*).

Bird species that are present in the region during the nesting season include black-chinned hummingbird (*Archilochus alexandri*), Pacific-slope flycatcher (*Empidonax difficilis*), ash-throated flycatcher (*Myiarchus cinerascens*), phainopepla (*Phainopepla nitens*), western tanager (*Piranga ludoviciana*), black-headed grosbeak (*Pheucticus melanocephalus*), hooded oriole (*Icterus cucullatus*), and Bullock's oriole (*Icterus bullockii*). Wintering species that would be expected to occur include ruby-crowned kinglet (*Regulus calendula*), cedar waxwing (*Bombycilla cedrorum*), yellow-rumped warbler (*Setophaga coronata* [*Dendroica coronata*]), Townsend's warbler (*Setophaga townsendi* [*Dendroica townsendi*]), and white-crowned sparrow.

Raptors (birds of prey) observed in the study area include Cooper's hawk (*Accipiter cooperii*), red-shouldered hawk (*Buteo lineatus*), red-tailed hawk (*Buteo jamaicensis*), barn owl (*Tyto alba*), and great horned owl (*Bubo virginianus*). The turkey vulture (*Cathartes aura*), a scavenger, was observed in the study area. These raptor species are expected to nest in large oak or sycamore trees, or on rocky cliff ledges. A red-tailed hawk was observed nesting on the cliff face east of Santa Anita Reservoir during the surveys.

Small-sized mammals observed in the study area include western gray squirrel (*Sciurus griseus*), California ground squirrel (*Spermophilus beecheyi*), Merriam's chipmunk (*Neotamius* [*Tamias*] *merriami*), and Botta's pocket gopher (*Thomomys bottae*). Medium-sized mammals observed in the study area include desert cottontail (*Sylvilagus audubonii*), coyote (*Canis latrans*), and striped skunk (*Mephitis mephitis*). Large-sized mammals observed or detected in the study area include black bear (*Ursus americanus*) and mule deer (*Odocoileus hemionus*); mountain lion (*Puma concolour*) would also be expected.

Bats occur throughout most of Southern California and may use any portion of the study area as foraging habitat. Most of the bats that could potentially occur in the study area are inactive during the winter and either hibernate or migrate, depending on the species. An acoustical survey was conducted to determine which bats occur within or adjacent to Project Work Areas (Attachment I). The following common bat species were observed: big brown bat (*Eptesicus fuscus*), Brazilian free-tailed bat (*Tadarida brasiliensis*), canyon bat (*Parastrellus hesperus*), hoary bat (*Lasiurus cinereus*), yuma myotis (*Myotis yumanensis*), little brown bat (*Myotis lucifigus*), and California myotis (*Myotis californicus*). Bats may roost in the rocky outcroppings along Santa Anita Canyon, in crevices of structures, or in large oak or sycamore trees in the study area. Acoustical surveys are initiated before dusk and record sonar calls of bats as they emerge from their roosts; it is assumed that bats that are recorded within the first hour are roosting in or around the recording site while those that first appear over an hour into the recording are assumed to have traveled to the area to forage from a roost site out of the immediate area. Based on the acoustical recordings, the big brown bat, Brazilian free-tailed bat, canyon bat, yuma myotis, little brown bat, and California myotis have a moderate to high potential to roost in crevices and structures in and around Project Work Areas.

Wildlife Movement

Wildlife corridors link together areas of suitable wildlife habitat that are otherwise separated by rugged terrain, changes in vegetation, or human disturbance. The fragmentation of open space areas by urbanization creates isolated "islands" of wildlife habitat. In the absence of habitat linkages that allow movement to adjoining open space areas, various studies have concluded that some wildlife species, especially the larger and more mobile mammals, will not likely persist over time in fragmented or isolated habitat areas because they prohibit the infusion of new individuals and genetic information. Corridors mitigate the effects of this fragmentation by (1) allowing animals to move between remaining habitats, thereby permitting depleted populations to be replenished and promoting genetic exchange; (2) providing routes for wildlife to escape from fire, predators and human disturbances, thus reducing the risk that catastrophic events (such as fire

or disease) will result in population or local species extinction; and (3) serving as travel routes for individual animals as they move in their home ranges in search of food, water, mates, and other necessary resources.

A number of terms such as "wildlife corridor", "travel route", "habitat linkage", and "wildlife crossing" have been used in various wildlife movement studies to refer to areas in which wildlife move from one area to another. To clarify the meaning of these terms and to facilitate the discussion on wildlife movement in this analysis, these terms are defined as follows:

- **Travel Route –** a landscape feature (such as a ridgeline, drainage, canyon, or riparian strip) within a larger natural habitat area that is used frequently by animals to facilitate movement and to provide access to necessary resources (e.g., water, food, cover, den sites). The travel route is generally preferred because it provides the least amount of topographic resistance in moving from one area to another. It contains adequate food, water, and/or cover while moving between habitat areas and it provides a relatively direct link between target habitat areas.
- **Wildlife Corridor –** a piece of habitat, usually linear in nature, which connects two or more habitat patches that would otherwise be fragmented or isolated from one another. Wildlife corridors are usually bound by urban land areas or other areas unsuitable for wildlife. The corridor generally contains suitable cover, food, and/or water to support species and to facilitate movement while in the corridor. Larger, landscape-level corridors (often referred to as "habitat linkages" or "landscape linkages") can provide both transitory and resident habitat for a variety of species.
- **Wildlife Crossing –** a small, narrow area, relatively short in length and generally constricted in nature that allows wildlife to pass under or through an obstacle or barrier that otherwise hinders or prevents movement. Crossings typically are man-made and include culverts, underpasses, drainage pipes, and tunnels to provide access across or under roads, highways, pipelines, or other physical obstacles. These often represent "choke points" along a movement corridor, which may impede wildlife movement and increase the risk of predation.

It is important to note that, in a large open space area where there are few or no man-made or naturally occurring physical constraints to wildlife movement, wildlife corridors (as defined above) may not yet exist. Given an open space area that is both large enough to maintain viable populations of species and to provide a variety of travel routes (e.g., canyons, ridgelines, trails, riverbeds, and others), wildlife will use these "local" routes while searching for food, water, shelter, and mates and will not need to cross into other large open space areas. Based on their size, location, vegetative composition and availability of food, some of these movement areas (e.g., large drainages and canyons) are used for longer lengths of time and serve as source areas for food, water and cover, particularly for small- and medium-sized animals. This is especially true if the travel route is within a larger open space area. However, once open space areas become constrained and/or fragmented as a result of urban development or construction of physical obstacles (such as roads and highways), the remaining landscape features or travel routes that connect the larger open space areas become corridors as long as they provide adequate space, cover, food and water, and do not contain obstacles or distractions (e.g., man-made noise, lighting) that would generally hinder wildlife movement.

The Dam is located adjacent to the southern edge of the Angeles National Forest. Development is located to the west and south of the Debris Dam, and Santa Anita Wash is channelized downstream of the Project area. Therefore wildlife is expected to move relatively freely between the Project area and open space areas to the north, but are not expected to move regularly into

the developed areas south of the Project area (with exception of urban-tolerant species such as coyotes and striped skunks).

Santa Anita Canyon is naturally very steep sided and restricts many species to traveling either up the canyon bottom or along the ridgelines. For species that travel along riparian corridors, the Dam is a barrier to movement between the Reservoir and Santa Anita Canyon below. However, the ridgelines adjacent to the Dam are undeveloped and would allow species to move around the Dam if they could travel in upland habitats. Aquatic species would either be restricted to Santa Anita Reservoir or Santa Anita Canyon from below the Dam to the northern end of Debris Dam (where the stream dries).

Special Status Biological Resources

A literature review was performed prior to the initiation of surveys to identify special status plants, wildlife, and habitats known to occur (or that historically occurred) in the vicinity of the Project study area. These searches included a review of the USGS' Mt. Wilson, Azusa, El Monte, Pasadena, and Baldwin Park 7.5-minute quadrangles[6] in the California Native Plant Society's (CNPS) Electronic Inventory of Rare and Endangered Vascular Plants of California and the CDFW's California Natural Diversity Database (CNDDB). A review of Federal Endangered Species Act (FESA) critical habitat documents was used to identify any portions of the study area occurring within proposed or designated critical habitat. The literature review also included a review of the Angeles National Forest Threatened, Endangered, Proposed, Candidate, and Forest Service Sensitive Plants and Animals. Additionally, all previous biological documentation completed for the Santa Anita Dam Riser and Sediment Removal Project, including a Biological Technical Report, an Environmental Impact Report, and various focused survey reports were reviewed prior to the field surveys (LACDPW 2009).

Special Status Vegetation Types

The CNDDB provides an inventory of vegetation types that are considered special status by the State and federal resource agencies, academic institutions, and various conservation groups (such as the CNPS). Determination of the level of imperilment is based on the NatureServe Heritage Program Status Ranks that rank both species and vegetation types on a global (**G**) and statewide (**S**) basis according to their rarity; trend in population size or area; and recognized threats (e.g., proposed developments, habitat degradation, and non-native species invasion). All vegetation alliances[7] that have State ranks of S1 to S3 are considered to be highly imperiled. Three vegetation types in the study area would be considered special status: southern mixed chaparral/rock outcroppings, southern cottonwood willow riparian forest, and sycamore alluvial woodland/southern riparian forest

Special Status Plant Species

Ninety-six special status plant species have been reported from the Project area based on the results of the literature review described above. These names of these species, their listing status, potential to occur in each portion of the study area, and whether or not they were observed during focused surveys are detailed in Appendix B. No Threatened or Endangered plant species are expected to occur in the study area due to lack of suitable habitat or based on the results of focused surveys. The two special status plant species observed in the study area during the

6 These quadrangles were selected based on their proximity and topographic similarity to the project study area. Additional quadrangles were not considered necessary as they would provide minimal additional value.

7 A vegetation alliance is "a classification unit of vegetation, containing one or more associations and defined by one or more diagnostic species, often of high cover, in the uppermost layer or the layer with the highest canopy cover" (Sawyer et al. 2009).

2012–2013 surveys are listed in Table 4-6, Special Status Plant Species Known to Occur in the Project Area, and include Engelmann oak (*Quercus engelmannii*) and Coulter's matilija poppy (*Romneya coulteri*). The locations of these plants are mapped in Exhibit 4-2, Special Status Species Observed. No other special status plant species are expected to occur either due to lack of suitable habitat or based on the results of the 2012 focused surveys.

TABLE 4-6
SPECIAL STATUS PLANT SPECIES KNOWN TO OCCUR IN THE PROJECT AREA

Species	General Habitat/Range Description[a]	USFWS	CDFW	CRPR	USFS	Critical Habitat Present in the Study Area[b]	Potential for Occurrence[c]
Quercus engelmannii Engelmann oak	Occurs in chaparral, cismontane woodland, riparian woodland, and valley and foothill grasslands in Los Angeles, Orange, and Riverside counties and in Baja California, Mexico between sea level and 4,200 feet above msl.	–	–	4.2	–	–	Engelmann oaks were observed during the 2012 focused plant surveys and 2014 tree survey. 5 trees were recorded near the Debris Dam Work Area.
Romneya coulteri Coulter's matilija poppy	Inhabits dry washes and canyons in coastal sage scrub and chaparral away from the immediate coast between sea level and 4,000 feet above msl.	–	–	4.2	–	–	17 clumps of poppy were observed during the 2012 focused plant surveys. The species was observed west of the Debris Dam. This species spreads by rhizomes and it is difficult to identify individual plants.

USFWS: United States Fish and Wildlife Service; CDFW: California Department of Fish and Wildlife; CRPR: California Rare Plant Rank; USFS: United States Forest Service; –: no status for this agency; msl: mean sea level.

CRPR List Categories

List 4 Plants of Limited Distribution – A Watch List

CRPR Threat Code Extensions

.2 Fairly Endangered in California (20–80% of occurrences threatened)

[a] Source for General Habitat/Range Descriptions: Allen et al.1995.
[b] Critical Habitat only applies to USFWS-listed species. As such, any species without a USFWS listing, will have a "–".
[c] All previous biological documentation for the study area including a Biological Technical Report, an Environmental Impact Report, and various focused survey reports were reviewed to compile this table (see the Biological Technical Report for a complete list of sources used). Results of previous surveys are only listed for species for which the respective report specifically mentioned that species. The targets of each survey may vary based on the habitats present in each respective survey area. Also, the CRPR ranking changes with time and these surveys typically focus on the species with the highest rankings at the time of the survey. Additionally, it should be noted that while the survey areas for previous surveys partially overlapped with the study area for this report, the boundaries varied from project to project. Repeated negative survey results contribute to increasing the strength of an absence finding.

Source: BonTerra Psomas 2014b (Appendix B).

Survey Area

Special Status Species

- Engelmann oak (2012, 2014)
- Coulter's matilija poppy (2012)
- unidentified turtle* (2011)
- coastal western whiptail (2009)
- two-striped garter snake (2012)
- yellow warbler (2009, 2012)
- yellow-breasted chat (2009)
- Southern California rufous-crowned sparrow (2009, 2012)
- Acoustic Recordings of Bat Species (2014)
  Townsend's big-eared bat
  hoary bat
  fringed myotis
  western mastiff bat

* A turtle (*Emydidae*) was observed during turtle trapping in 2011. Although not positively identified, it had characteristics consistent with a Pacific pond turtle.

Angeles National Forest Non-Forest Land Inholding Area

Santa Anita Canyon Rd

Santa Anita Ave

Monte Pl

Canyon Rd

Cielo Pl

Highland Vista Dr

Topaz Pl

Angelo Pl

Marilynn Pl

Highland Oaks Pl

Hillgreen Pl

Carolwood Dr

Elkins Pl

Oaks Pl

Elkins Ave

White Oak Dr

Highland Oaks Dr

D:\Projects\CoLADPW\J166\mxd\MND\Ex_SSSpecies_20140922.mxd

Special Status Species Observed

Exhibit 4-2

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

N W E S

600 300 0 600

Feet

BonTerra PSOMAS

(Rev: 9-22-2014 JAZ) H:\PAS\Projects\CoLADPW\J166\Graphics\MND\Ex4-2_SSSpecies.pdf

Special Status Wildlife

Sixty-four special status wildlife species have been reported from the Project area based on the results of the literature review described above. The names of the species, their listing status, potential to occur in each portion of the study area, and whether or not they were observed during focused surveys is detailed in the Biological Technical Report (Appendix B). Special status wildlife species observed in the study area during the 2009 - 2014 focused surveys are listed in Table 4-7, Special Status Wildlife Species Observed in the Project Area, and include coastal western whiptail (*Aspidoscelis tigris stejnegeri*), two-striped garter snake, Cooper's hawk, yellow warbler (*Setophaga petechia*), yellow-breasted chat (*Icteria virens*), Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*), Townsend's big-eared bat (*Corynorhinus townsendii*), hoary bat (*Lasiurus cinereus*), fringed myotis (*Myotis thysanodes*), and western mastiff bat (*Eumops perotis californicus*). The locations of these species are mapped in Exhibit 4-2. Additionally, 20 special status wildlife species have potential to occur in the study area based on the presence of suitable habitat and are listed in Table 4-7.

TABLE 4-7
SPECIAL STATUS WILDLIFE SPECIES KNOWN OR WITH POTENTIAL TO OCCUR IN THE PROJECT AREA

Species	General Habitat/Range Description	USFWS	CDFW	USFS	Critical Habitat Present in the Study Area[a]	Potential for Occurrence[b]
Reptiles						
Emys [*Actinemys*] *marmorata* [*pallida*] Pacific [western] pond turtle	Occurs in ponds, lakes, marshes, rivers, streams, and irrigation ditches with a rocky or muddy bottom and aquatic vegetation at elevations from sea level to approximately 6,696 feet above msl.	–	SSC	FSS	–	Not expected to occur along Santa Anita Canyon because not observed during 2012 focused turtle trapping; previously observed in Santa Anita Reservoir during focused turtle trapping in 2011.
Phrynosoma blainvillii coast horned lizard	Occurs in scrubland, grassland, coniferous forests, and broadleaf woodland vegetation types.	–	SSC	–	–	May occur; suitable habitat; not observed during 2007 or 2012 focused surveys.
Aspidoscelis tigris stejnegeri **coastal western whiptail**	**Occurs in hot and dry areas with sparse foliage and open areas. Found in forests, woodland, chaparral, and riparian areas.**	**–**	**–**	**–**	**–**	**Observed; suitable habitat; incidentally observed during 2012 surveys; previously observed during 2009 surveys.**
Diadophis punctatus modestus San Bernardino ringneck snake	Occurs in moist habitats, including wet meadows, rocky hillsides, gardens, farmland, grassland, chaparral, mixed coniferous forests, and woodlands.	–	–	FSS	–	May occur; potentially suitable habitat.
Lampropeltis zonata parvirubra San Bernardino Mountain kingsnake	Occurs in diverse habitats including coniferous forest, oak-pine woodlands, riparian woodland, chaparral, manzanita, and coastal sage scrub from 800 to 9,000 feet above msl.	–	–	FSS	–	May occur; potentially suitable habitat.
Lichanura orcutti [*Charina trivirgata roseofusca]* Northern three-lined boa [coastal rosy boa]	Inhabits arid scrublands, semi-arid shrublands, rocky shrublands, rocky deserts, canyons, and other rocky areas. May be common in riparian areas, but does not require permanent water.	–	–	FSS	–	May occur; potentially suitable habitat.
Salvadora hexalepis virgultea coast patch-nosed snake	Occurs in semi-arid brushy areas and chaparral in canyons, rocky hillsides, and plains at elevations from sea level to around 7,000 feet above msl.	–	SSC	–	–	May occur; potentially suitable habitat.

TABLE 4-7
SPECIAL STATUS WILDLIFE SPECIES KNOWN OR WITH POTENTIAL TO OCCUR IN THE PROJECT AREA

Species	General Habitat/Range Description	USFWS	CDFW	USFS	Critical Habitat Present in the Study Area[a]	Potential for Occurrence[b]
Thamnophis hammondii **two-striped garter snake**	**Occurs in wetlands, freshwater marsh, and riparian habitats with perennial water.**	**–**	**SSC**	**FSS**	**–**	**Observed during 2012 focused surveys; suitable habitat.**
Birds						
Accipiter cooperii **Cooper's hawk (nesting)**	**Preferred nesting habitats are oak and riparian woodlands dominated by sycamores and willows.**	**–**	**WL**	**–**	**–**	**Observed foraging during 2012 focused surveys; previously observed foraging during 2009 focused surveys; suitable nesting habitat.**
Elanus leucurus white-tailed kite (nesting)	Occurs in savanna, open woodlands, marshes, desert grassland, partially cleared lands, and cultivated fields.	–	FP	–	–	Limited potential to occur; not observed during focused bird surveys in 2012 or in 2009; marginally suitable foraging and nesting habitat.
Falco columbarius merlin (wintering)	Winters in open woodland, grasslands, open cultivated fields, marshes, estuaries, and seacoasts. Does not breed locally; breeds in the boreal forests.	–	WL	–	–	Limited potential to occur in winter; marginally suitable foraging habitat.
Falco mexicanus prairie falcon	Occurs in grasslands, shrub-steppe, deserts, and other open areas up to about 10,000 feet above msl. In the winter, they also occur in cultivated fields, lakeshores, and desert scrub.	–	WL	–	–	Limited potential to occur; limited suitable foraging habitat; potentially suitable nesting habitat.
Falco peregrinus anatum American peregrine falcon (nesting)	Nests in inaccessible areas such as cliffs, high building ledges, bridges, or other such structures.	Delisted	Delisted/FP	–	–	May occur; limited suitable foraging and nesting habitat.
Asio otus long-eared owl	Occurs in dense vegetation adjacent to open grassland or shrubland, and open forests.	–	SSC	–	–	May occur; suitable foraging and nesting habitat.

TABLE 4-7
SPECIAL STATUS WILDLIFE SPECIES KNOWN OR WITH POTENTIAL TO OCCUR IN THE PROJECT AREA

Species	General Habitat/Range Description	USFWS	CDFW	USFS	Critical Habitat Present in the Study Area[a]	Potential for Occurrence[b]
Cypseloides niger black swift	Nesting typically occurs in a moist crevice or cave on a sea cliff above the surf or on cliffs behind or adjacent to waterfalls in deep canyons.	–	SSC	–	–	May occur for foraging only; no suitable nesting habitat.
Lanius ludovicianus loggerhead shrike	Occurs in shrublands or open woodlands with a fair amount of grass cover and areas of bare ground.	–	SSC	–	–	May occur; suitable habitat.
***Setophaga petechia* [*Dendroica petechia*] yellow warbler**	**Riparian habitats dominated by willows with dense understory vegetation between sea level and 9,000 feet above msl.**	**–**	**SSC**	**–**	**–**	**Observed during 2012 focused surveys; previously observed during 2009 focused surveys; suitable habitat.**
***Icteria virens* yellow-breasted chat**	**For nesting, this species requires dense, brushy tangles near water and riparian woodlands that support a thick understory.**	**–**	**SSC**	**–**	**–**	**May occur; not observed during 2012 surveys; previously observed during 2009 focused surveys; suitable habitat.**
***Aimophila ruficeps canescens* Southern California rufous-crowned sparrow**	**Occurs in shrublands on hillsides and in canyons with rocky, dry slopes.**	**–**	**WL**	**–**	**–**	**Observed during 2012 focused surveys; previously observed during 2009 focused surveys; suitable habitat.**
Mammals						
Antrozous pallidus pallid bat	Occurs in grasslands, shrublands, and woodlands and in open habitats with rocky areas for roosting.	–	SSC	FSS	–	May occur; potentially suitable foraging and roosting habitat; one unidentified acoustical recording may have been pallid bat.

TABLE 4-7
SPECIAL STATUS WILDLIFE SPECIES KNOWN OR WITH POTENTIAL TO OCCUR IN THE PROJECT AREA

Species	General Habitat/Range Description	USFWS	CDFW	USFS	Critical Habitat Present in the Study Area[a]	Potential for Occurrence[b]
Corynorhinus townsendii **Townsend's big-eared bat**	**Occurs in oak woodlands, arid deserts, grasslands, and high-elevation forests and meadows. Roosts in limestone caves, lava tubes, and man-made structures.**	**–**	**SC/SSC**	**FSS**	**–**	**Observed foraging at the Dam (acoustical analysis results); not expected to roost at the Dam (first observation recorded over an hour into the survey so bat likely traveled to the Dam from its roosting location); potentially suitable foraging and roosting habitat (prefers caves; would not be expected to roost on the structures).**
Lasionycteris noctivagans silver-haired bat	Typically hibernates in small tree hollows, beneath sections of tree bark, in buildings, rock crevices, in wood piles, and on cliff faces. Occasionally will hibernate in the entrances to caves, especially in northern regions of their range.	–	SA	–	–	May occur; potentially suitable foraging and roosting habitat; not observed during acoustical surveys.
Lasiurus blossevillii western red bat	Occurs in riparian habitats dominated by cottonwoods, oaks, sycamores, and walnuts.	–	SSC	–	–	May occur; potentially suitable foraging and roosting habitat; not observed during acoustical surveys.
Lasiurus cinereus **hoary bat**	**Occurs in open habitats or habitat mosaics with access to trees for cover and roosts in dense foliage of medium to large trees. Also uses trees in urban areas several miles away from undeveloped habitat.**	**–**	**SA**	**–**	**–**	**Observed foraging at the Dam (acoustical analysis results); not expected to roost at the Dam (tree roosting species); potentially suitable foraging and roosting habitat.**

TABLE 4-7
SPECIAL STATUS WILDLIFE SPECIES KNOWN OR WITH POTENTIAL TO OCCUR IN THE PROJECT AREA

Species	General Habitat/Range Description	USFWS	CDFW	USFS	Critical Habitat Present in the Study Area[a]	Potential for Occurrence[b]
Myotis thysanodes **fringed myotis**	**Occurs in a variety of habitats including desert scrub, mesic coniferous forest, grassland, and sage-grass steppe, but mostly commonly in drier woodlands (i.e., oak, pinyon-juniper, and ponderosa pine). Forages in forest interior and along forest edges. Roosts in crevices in buildings, underground mines, rocks, cliff faces, bridges, decadent trees, and snags.**	**–**	**–**	**FSS**	**–**	**Observed foraging at the Dam (acoustical survey results); expected to roost in the Dam (crevices); potentially suitable foraging and roosting habitat.**
Eumops perotis californicus **western mastiff bat**	**Found in many open semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, palm oases, chaparral, desert scrub, and urban areas. Typically forages in open areas with high cliffs and roosts in small colonies in crevices on cliff faces.**	**–**	**SSC**	**–**	**–**	**Observed foraging at the Dam (acoustical survey results); limited potential to roost in the Dam (first observation recorded over an hour into the survey so bat likely traveled to the Dam from its roosting location); potentially suitable foraging and roosting habitat.**
Nyctinomops femorosaccus pocketed free-tailed bat	Occurs in areas with ponds or streams or in arid deserts that provide suitable foraging habitat. It primarily roosts in crevices in rugged cliffs, slopes, and tall rocky outcrops.	–	SSC	–	–	May occur; potentially suitable foraging and roosting habitat; not observed during acoustical surveys.
Nyctinomops macrotis big free-tailed bat	Feeds primarily on moths caught while flying over water sources in suitable habitat in the southwestern U.S. This species prefers rugged, rocky terrain and roosts in crevices in high cliffs or rocky outcrops.	–	SSC	–	–	May occur; potentially suitable foraging and roosting habitat; not observed during acoustical surveys.

TABLE 4-7
SPECIAL STATUS WILDLIFE SPECIES KNOWN OR WITH POTENTIAL TO OCCUR IN THE PROJECT AREA

Species	General Habitat/Range Description	USFWS	CDFW	USFS	Critical Habitat Present in the Study Area[a]	Potential for Occurrence[b]
Onychomys torridus ramona southern grasshopper mouse	Occurs in grassland and sparse scrub vegetation types and prefers sandy soils.	–	SSC	–	–	Limited potential to occur; potentially suitable habitat.
Perognathus longimembris brevinasus Los Angeles pocket mouse	Occurs in lower elevation grasslands and coastal sage scrub vegetation with open ground and fine sandy soils between 550 and 2,650 feet above msl.	–	SSC	–	–	May occur; potentially suitable habitat.

USFWS: U.S. Fish and Wildlife Service; CDFW: California Department of Fish and Wildlife; USFS: U.S. Forest Service; msl: mean sea level

Status Definitions

State (CDFW) Status
SSC Species of Special Concern
SC Candidate
FP California Fully Protected
WL Watch List
SA Special Animal

USFS Status
FSS Forest Service Sensitive Species

Species that were observed on site are shown in **boldface type.**

[a] Critical Habitat only applies to USFWS-listed species. As such, any species without a USFWS listing, will have a "–".

[b] All previous biological documentation for the study area including a Biological Technical Report, an Environmental Impact Report, and various focused survey reports were reviewed to compile this table (see Biological Technical Report for complete list of sources used). Results of previous surveys are only listed for species for which the respective report specifically mentioned that species. It should be noted that while the survey areas for previous surveys partially overlapped with the study area for this report, the boundaries varied from project to project. Repeated negative survey results contribute to increasing the strength of an absence finding.

Source: BonTerra Psomas 2014b (Appendix B).

Significant Ecological Areas

Significant Ecological Areas (SEAs) were established in 1980 by Los Angeles County based on a study completed in 1976 (England and Nelson 1976) to designate areas with sensitive environmental conditions and/or resources in order to preserve biological diversity. SEA boundaries are general in nature and broadly outline the biological resources of concern. The study area is not located in an SEA; however it is located approximately 1.8 miles from the Los Angeles County's San Gabriel Canyon SEA 62. This SEA is centered on the mouths of three major canyons—San Gabriel, Sawpit, and Santa Anita Canyon—which flow from the mountains and the interconnecting terrain in between. This area was designated because it contains the last remaining relatively well-developed lower montane riparian habitats in the eastern County.

Updates to Los Angeles County's SEAs have been drafted and are currently under review. The updated SEA boundaries include the Study Area within the San Gabriel Canyon SEA (LACDRP 2011). However, the new boundaries will not be effective until the SEA boundaries are finalized; until then, the existing SEA boundaries will be in effect.

Trees in Project Study Area

BonTerra Psomas Certified Arborists surveyed trees on August 28, 2014 and on September 2 and 15, 2014. All trees within the tree survey area boundaries that are subject to regulation by a City and/or County tree ordinance and/or the California Fish and Game Code were identified and mapped in the field. A total of 162 trees were documented that met this criteria. During the survey, each tree was tagged and the following data were collected: diameter at breast height (dbh), tree height, and canopy width, as well as qualitative ratings on aesthetics and overall health.

4.4.2 IMPACT ANALYSIS

Project Design Features

PDF BIO-1 A Biological Monitor will be on site during vegetation clearing in Project Work Areas (e.g., limits of disturbance). The Biological Monitor will confirm that the limits of Project Work Areas are clearly marked. The Biological Monitor shall provide environmental awareness training to the Contractor; the training will include a discussion of native habitat types, special status species that may occur in the Project Work Areas, direction for what to do if a special status species is observed, and an overview of applicable permit conditions. Prior to construction, the Biological Monitor will conduct a pre-clearing sweep of the Project Work Area and will flush or move wildlife outside the Project Work Area to the extent practicable.

Regulatory Requirements

None required.

Impact Discussion

For the purposes of all impact discussions below, all impacts are categorized as being either permanent or temporary. Permanent impact areas are defined as changes to or removal of an existing vegetation type or "other areas," including disturbed or developed (e.g., paved) that are permanent as a result of Project implementation. These impact areas are labeled with a red boundary on relevant graphics.

Temporary access/impact areas are defined as areas that may be subject to traversing vehicles or other mobile equipment, staging of equipment, stockpiles of soil, minor soil disturbance where there is no permanent alteration to the existing grade (e.g., no permanent holes, trenches, or berms), and no vegetation or tree removal. These impact areas are labeled with a yellow boundary on relevant graphics.

a) Would the project have a substantial adverse effect, either directly or through habitat modification, 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?

Less than Significant Impact with Mitigation. No federally or State Threatened or Endangered species are expected to occur in the Project area due to lack of suitable habitat or based on results of focused surveys. The Project Work Areas in relation to the underlying vegetation/other areas are mapped in Exhibits 4-3A through 4-3E, Project Work Areas. A State Candidate for listing, Townsend's big-eared bat, was observed foraging in the Dam Work Area but is not currently expected to roost in any Project Work Areas; this species is discussed further below under a discussion of impacts on bats.

Two special status plant species were observed during the surveys: Engelmann oak and Coulter's matilija poppy. None of the Engelmann oaks or Coulter's matilija poppy are located in Project Work Areas; therefore, there would be no impact on these species. Although not anticipated, oak tree branches or oak tree roots may need to be trimmed or maintained during Project implementation. Damage to oak trees is potentially significant. Implementation of MM BIO-1, which requires that an arborist be consulted to obtain recommendations that would avoid adversely affecting the health and viability of the oak trees, would reduce this potential impact to less than significant.

To assess impacts on wildlife, the total impact on particular vegetation types that provide habitat for wildlife was analyzed. A summary of vegetation types is found in Table 4-8, Vegetation Types and Other Areas Within Project Work Areas (acres). These vegetation types are primarily native types, although some types have a mixture of native and non-native vegetation.

A turtle, not positively identified but consistent with a Pacific pond turtle (*Emys marmorata*), was observed in Santa Anita Reservoir during focused trapping surveys in 2011. Santa Anita Reservoir would be dewatered during work on the Dam, which would make this habitat unavailable to Pacific pond turtle during construction in the Dam Work Area. If the area upstream of the Headworks is ponded at the time of construction, this area would also be dewatered. Dewatering of the Reservoir and the pond upstream of the Headworks may affect this species and the impact would be considered potentially significant because this species meets the criteria to be considered under Section 15380 of the CEQA Guidelines.[8] Implementation of MM BIO-2, which requires pre-construction trapping and relocation of any Pacific pond turtles as authorized by the USFS and CDFW, would reduce this impact to a less than significant level.

Coast horned lizard (*Phrynosoma blainvillii*), coastal western whiptail (*Aspidoscelis tigris stejnegeri*), [San Bernardino] ringneck snake (*Diadophis punctatus modestus*), San Bernardino mountain kingsnake (*Lampropeltis zonata parvirubra*), northern three-lined boa [coastal rosy boa]

[8] Section 15380 of the CEQA Guidelines indicates that a lead agency can consider a non-listed species (e.g., CDFW Species of Special Concern) to be Endangered, Rare, or Threatened for the purposes of CEQA if the species can be shown to meet the criteria in the definition of Rare or Endangered. For the purposes of this discussion, the current scientific knowledge on the population size and distribution for each special status species was considered in determining if a non-listed species met the definitions for "Rare" and "Endangered" according to Section 15380 of the CEQA Guidelines.

Angeles National Forest

Non-Forest Land Inholding Area

Proposed Helipad Location

Santa Anita Dam

City of Monrovia

Unincorporated County

Angeles National Forest

Non-Forest Land Inholding Area

LACFCD Right of Way
City Boundary
Angeles National Forest Boundary

Work Areas

Permanent
Temporary Access

Vegetation Types and Other Areas

Mixed Coastal Sage Scrub
Disturbed Mixed Coastal Sage Scrub
Southern Mixed Chaparral
Southern Mixed Chaparral/Mixed Coastal Sage Scrub
Disturbed Southern Mixed Chaparral/Mixed Coastal Sage Scrub
Southern Mixed Chaparral/Rock Outcroppings
Southern Cottonwood Willow Riparian Forest
Sycamore Alluvial Woodland/Southern Riparian Forest
Southern Sycamore Alder Riparian Woodland
Mule Fat Scrub
Coast Live Oak Woodland
Mixed Woodland
Oak Woodland/Southern Mixed Chaparral
Ornamental
Ornamental/ Coast Live Oak Woodland
Ruderal
Disturbed
Developed
Open Water
Rock Outcroppings

Aerial Source: LAR-IAC 2011

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Project Work Areas - Biological Resources - Dam

Exhibit 4-3A

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

N W E S

200 100 0 200 Feet

BonTerra PSOMAS

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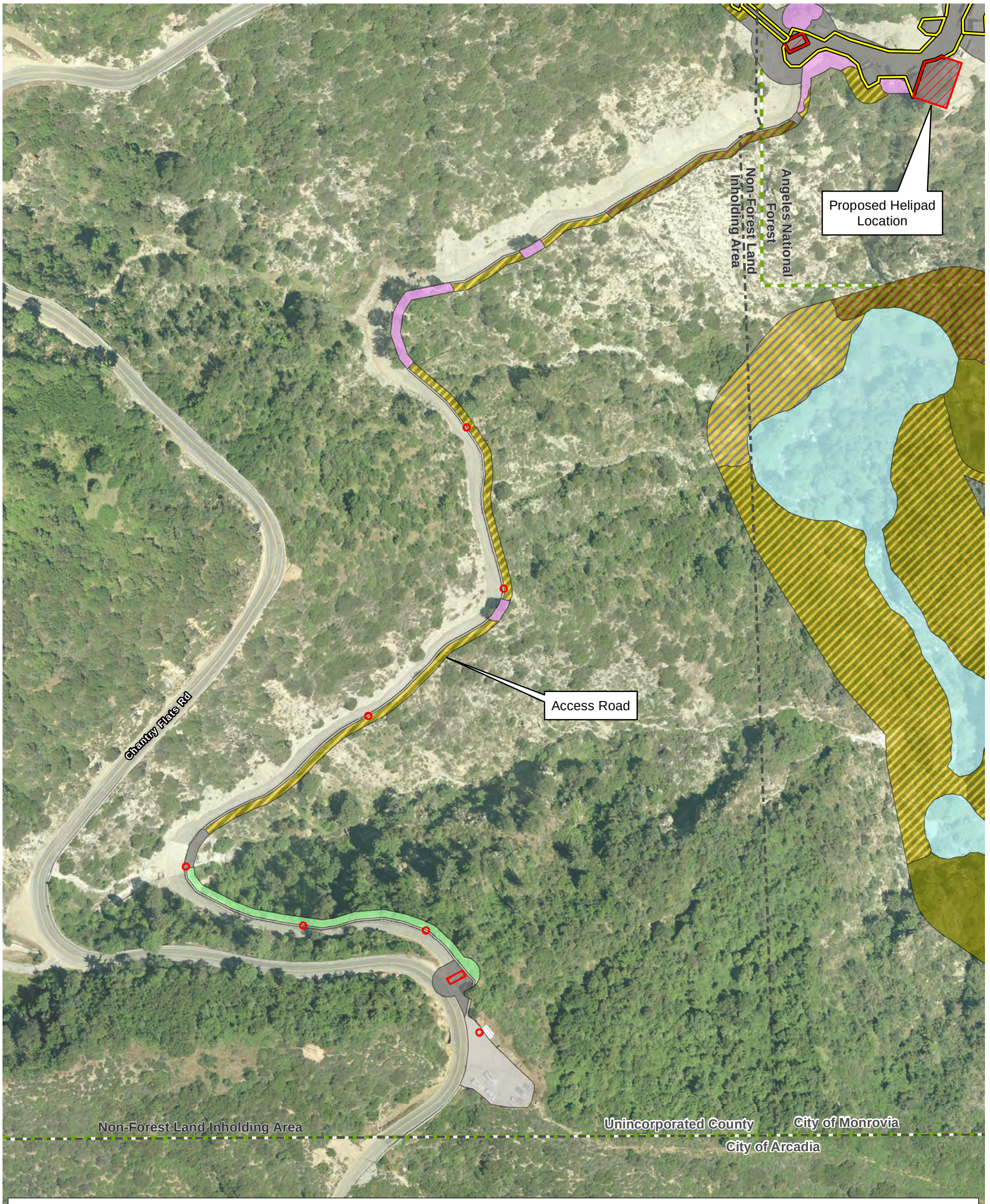

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Project Work Areas – Biological Resources – Dam (Access Road)

Exhibit 4-3B

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

N W E S

150 75 0 150 Feet

PSOMAS

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Unincorporated County
City of Monrovia
City of Arcadia
Angeles National Forest
Non-Forest Land
Inholding Area
Headworks Facility
Wilderness Park Culvert Crossing
Canyon Rd
Unnamed Street
Highland Vista Dr
Oaks Dr
Lower CL Shell Truck
City of Arcadia
City of Monrovia

- LACFCD Right of Way
- City Boundary
- Angeles National Forest Boundary

Work Areas

- Permanent
- Temporary Access

Vegetation Types and Other Areas

- Mixed Coastal Sage Scrub
- Disturbed Mixed Coastal Sage Scrub
- Southern Mixed Chaparral
- Southern Mixed Chaparral/Mixed Coastal Sage Scrub
- Disturbed Southern Mixed Chaparral/Mixed Coastal Sage Scrub
- Southern Mixed Chaparral/Rock Outcroppings
- Southern Cottonwood Willow Riparian Forest
- Sycamore Alluvial Woodland/Southern Riparian Forest
- Southern Sycamore Alder Riparian Woodland
- Mule Fat Scrub
- Coast Live Oak Woodland
- Mixed Woodland
- Oak Woodland/Southern Mixed Chaparral
- Ornamental
- Ornamental/ Coast Live Oak Woodland
- Ruderal
- Disturbed
- Developed
- Open Water
- Rock Outcroppings

Aerial Source: LAR-IAC 2011

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Project Work Areas - Biological Resources - Headworks and Wilderness Park Culvert Crossing

Exhibit 4-3C

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

N
W E
S

200 100 0 200
Feet

BonTerra PSOMAS

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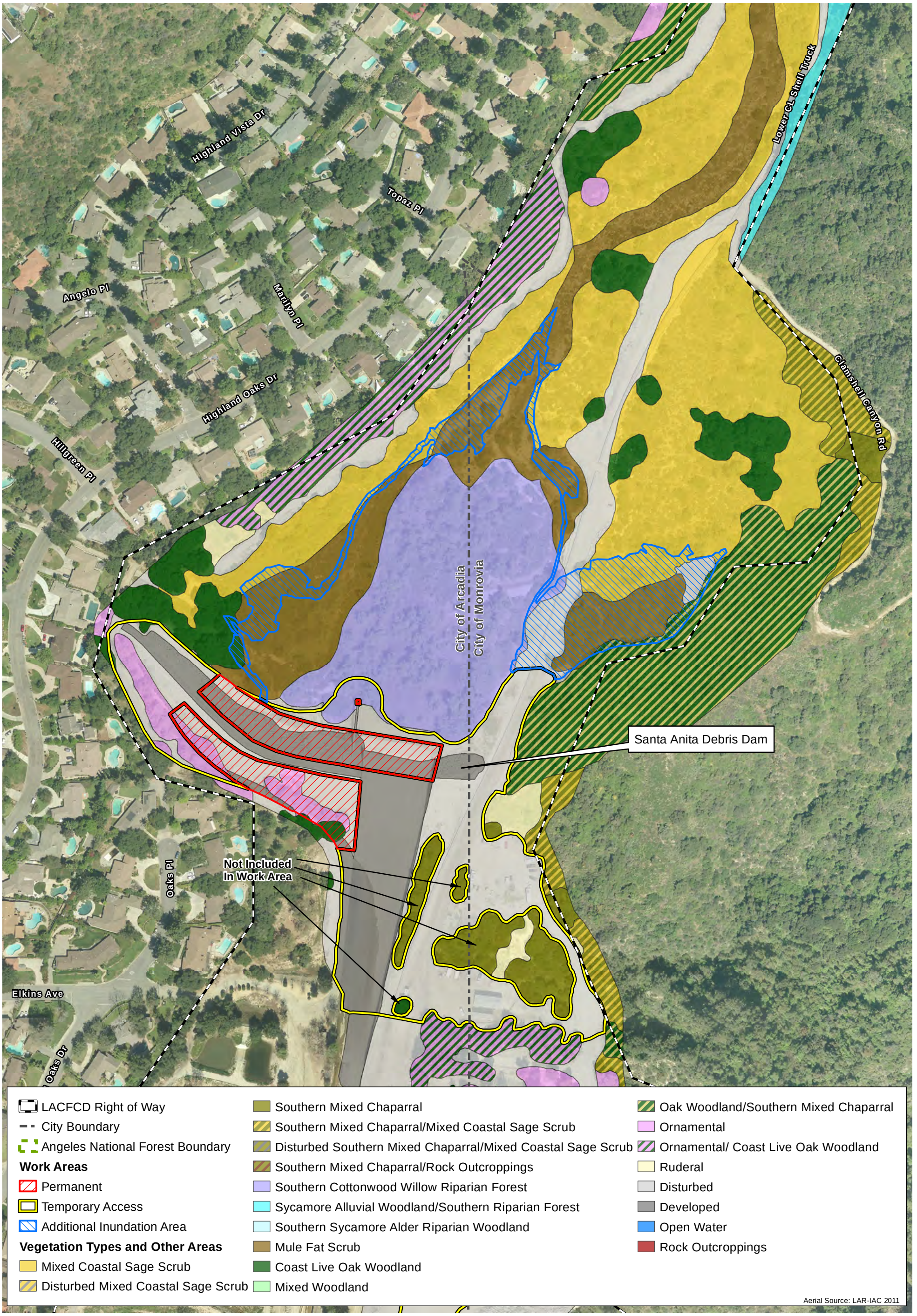

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Project Work Areas – Biological Resources – Debris Dam

Exhibit 4-3D

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

N W E S

200 100 0 200 Feet

BonTerra PSOMAS

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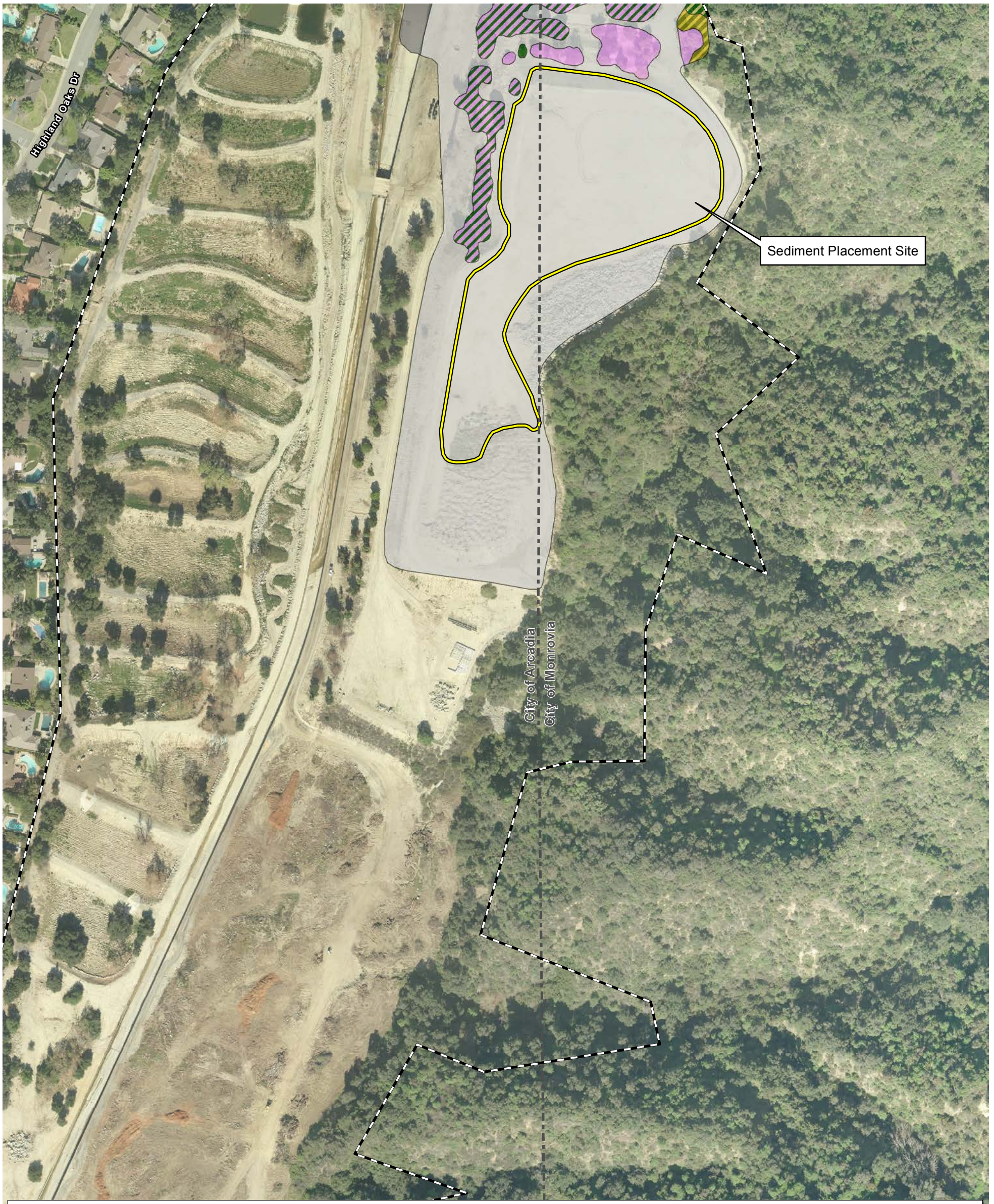

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Project Work Areas - Biological Resources - Debris Dam (Sediment Placement Site)

Exhibit 4-3E

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

N W E S

200 100 0 200 Feet

PSOMAS

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(*Lichanura orcutti* [*Charina trivirgata roseofusca*]), and coast patch-nosed snake have potential to occur or were observed in upland habitat types in the Project area. The two-striped garter snake was observed along Santa Anita Canyon during surveys. If during implementation of MM BIO-2, any two-striped garter snakes (or any other special status species) are observed, they will also be relocated to an appropriate site subject to the approval of USFS and CDFW.

The Project would result in the loss of approximately 0.80 acre of native habitat for these species (0.01 acre permanent and 0.12 acre for temporary access to the Dam; a permanent loss of 0.17 acre and a temporary loss of 0.23 acre for the Headworks and Wilderness Park Culvert Crossing; and a permanent loss of 0.04 acre and temporary loss of 0.23 acre for the Debris Dam). The minimal loss of native vegetation type (less than 0.01 percent of native vegetation types in the study area) would be considered less than significant in relation to the total amount of these vegetation types available in the study area and in the Project region (662,983 acres of open space in the Angeles National Forest). Therefore, the loss of habitat for these species would be considered less than significant. PDF BIO-1 requires biological monitoring during vegetation clearing; any individual wildlife observed by the Biological Monitor (e.g., lizards and snakes) would be relocated to outside the Project Work Areas.

Loggerhead shrike (*Lanius ludovicianus*) may occur in upland vegetation in the study area, and Southern California rufous-crowned sparrow was observed in upland vegetation in the study area. As shown in Table 4-8, Vegetation Types and Other Areas Within Project Work Areas (acres), and mapped on Exhibit 4-3, the Project Work Areas would include a total of approximately 0.19 acre of suitable habitat for these species (0.13 acre at the Dam and 0.06 acre at the Headworks facility). Due to the limited amount of habitat loss relative to the availability of habitat for these species in the Project area and region, impacts on loggerhead shrike and Southern California rufous-crowned sparrow would be considered adverse, but less than significant and no mitigation would be required. However, active nests of these species are protected by the Migratory Bird Treaty Act (MBTA) and the loss of an active nest would be considered a significant impact. Implementation of MM BIO-3, which requires pre-construction nesting bird surveys, would reduce this impact to a less than significant level.

Yellow warbler and yellow-breasted chat were observed in the study area. As shown in Table 4-8 and mapped on Exhibit 4-3, the Project Work Areas would include a total of 0.53 acre of suitable habitat for these species (0.33 acre at the Headworks, 0.20 acre at the Debris Dam) Due to the limited amount of habitat loss relative to the availability of habitat for these species in the Project area and region, impacts on yellow warbler and yellow-breasted chat would be considered adverse, but less than significant and no mitigation would be required. However, active nests of these species are protected by the MBTA and the loss of an active nest would be considered a significant impact. Implementation of MM BIO-3, which requires pre-construction nesting bird surveys, would reduce this impact to a less than significant level.

Cooper's hawk, white-tailed kite (*Elanus leucurus*), merlin (*Falco columbarius*), prairie falcon (*Falco mexicanus*), American peregrine falcon (*Falco peregrinus anatum*), long-eared owl (*Asio otus*), and black swift (*Cypseloides niger*) may forage over several habitats in the study area; Cooper's hawk was observed in the study area. Of these species, Cooper's hawk, white-tailed kite, and long-eared owl may nest in trees in the study area while prairie falcon and American peregrine falcon may nest on cliffs in the study area. As shown in Table 4-8 and mapped on Exhibit 4-3, the Project would result in the loss of a total of approximately 0.80 acre of native habitats and 11.41 acres of ornamental, ruderal, and disturbed areas of potential foraging habitat. The loss of foraging habitat for these species would contribute to the ongoing regional and local loss of foraging habitat. Although impacts on foraging habitat would be considered adverse, they would not be expected to appreciably affect the overall population of these species given the amount of suitable foraging habitat in the Project area and region. Therefore, impacts on foraging

habitat for these species would be considered adverse but less than significant and no mitigation would be required. However, the loss of any active raptor nest would be considered a potentially significant impact. Implementation of MM BIO-3, which requires pre-construction nesting bird surveys, would reduce this impact to a less than significant level.

Townsend's big-eared bat, hoary bat, fringed myotis, and western mastiff bat were observed in the Dam Work Area; pallid bat (*Antrozous pallidus*) was not positively identified but also may be present in the Dam Work Area based on a poor-quality call recorded during the survey. In addition, silver-haired bat (*Lasionycteris noctivagans*), western red bat (*Lasiurus blossevillii*), pocketed free-tailed bat (Nyctinomops femorosaccus), and big free-tailed bat (*Nyctinomops macrotis*) have potential to forage in the study area. Construction activities would only occur during daylight hours; therefore, foraging would continue to be available over the construction areas throughout the duration of construction. Many bat species prefer to forage over water. During construction of each facility, water would be routed around the construction area. Although each Project Work Area would be lower quality foraging habitat during construction, it is expected that water (i.e., preferred foraging habitat) would be available upstream and/or downstream of each Project Work Area during construction. This, combined with the large areas of open space surrounding the Project Work Areas would continue to provide suitable foraging habitat for bats throughout construction.

Additionally, following completion of each portion of the Project, open water would again be ponded within each facility. When natural rainfall allows, the modifications to the Debris Dam may increase the amount of open water ponded at the Debris Dam following completion of the project; a beneficial impact for foraging bats at the Debris Dam. Dewatering of the reservoir would also temporarily reduce the amount of flat water available for these bat species to drink during construction; however, drinking water would continue to be available upstream and downstream of each Project Work Area. Following completion of construction in each Project Work Area, the reservoir/ponded area would be allowed to refill and flat water would be available for bats to drink.

Townsend's big-eared bat typically roosts in caves and is therefore not expected to roost in the Dam or other structures. Additionally, no caves were observed immediately adjacent to Project Work Areas during the roosting bat survey and the acoustical surveys indicated that the Townsend's big-eared bat observed foraging at the Dam likely roosted some distance from the Project Work Area based on the timing of the first recorded call after dusk. Therefore, the Project is not expected to impact roosting Townsend's big-eared bat.

All of the other bat species listed above have potential to roost in or adjacent to Project Work Areas based on the presence of suitable habitat. Bats may roost in the rocky outcroppings along Santa Anita Canyon, in crevices of structures (e.g., Dam structure, gunite, Headworks facility building, Debris Dam outlet tower), or in large oak or sycamore trees in the study area (e.g., those at the Wilderness Park Culvert Crossing). Acoustical surveys are initiated before dusk and record sonar calls of bats as they emerge from their roosts; it is assumed that bats that are recorded within the first hour are roosting in or around the recording site while those that first appear over an hour into the recording are assumed to have traveled to the area to forage from a roost site out of the immediate area. Based on the acoustical recordings, fringed myotis and western mastiff bat have a low potential to roost in crevices and structures of the Dam Work Area because they were recorded over an hour into the survey. The hoary bat is not likely to roost in the Dam Work Area because it roosts in trees, although it may roost in other Project Work Areas. No special status bats were recorded at the Headworks or Debris Dam Work Areas during the acoustical surveys; however, suitable habitat is present and they may occur for roosting in the future.

As shown in Table 4-8 and mapped on Exhibit 4-3, the total combined loss of 0.57 acre of southern cottonwood willow riparian forest, sycamore alluvial woodland/southern riparian forest, and coast live oak woodland would remove potential roosting habitat for bat species that roost in trees (i.e., silver-haired bat, western red bat, and hoary bat); bat species that roost on cliffs and rocky outcroppings could be affected by repair of gunite adjacent to the Dam and/or construction on structures at the Dam and Headworks (i.e., pallid bat, Townsend's big-eared bat, fringed myotis, western mastiff bat, pocketed free-tailed bat, and big free-tailed bat). Impacts on bats roosting in trees and structures would be considered potentially significant because it could directly impact roosting individuals. Implementation of MM BIO-4, which requires pre-construction bat surveys, would reduce this impact to a less than significant level.

The loss of 0.57 acre of habitat for bats that roost in trees, and the temporary loss of crevices in the Dam or other structures where they could roost, would be considered adverse but less than significant because there are plenty of available trees and crevices in the Project vicinity that roosting bats could use as an alternative to roosting in Project Work Areas. Therefore, no mitigation would be required for the loss of roosts.

Southern grasshopper mouse (*Onychomys torridus ramona*) and Los Angeles pocket mouse (*Perognathus longimembris brevinasus*) may occur in sage scrub vegetation types in the study area. As shown in Table 4-8 and mapped on Exhibit 4-3, the Project would include a total of 0.03 acre of mixed sage scrub for construction of the Headworks facility and 0.13 acre of southern mixed chaparral/mixed coastal sage scrub for the Dam and 0.02 acre of southern mixed chaparral/mixed coastal sage scrub for the Headworks. Due to the limited amount of habitat loss relative to the availability of habitat for these species in the Project area and region, impacts on southern grasshopper mouse and Los Angeles pocket mouse would be considered adverse, but less than significant and no mitigation would be required.

TABLE 4-8
VEGETATION TYPES AND OTHER AREAS WITHIN PROJECT WORK AREAS (ACRES)

Vegetation Types and Other Areas	Existing Vegetation (Study Area)	Dam		Headworks and Wildness Park Culvert Crossing		Debris Dam			Total Permanent Structure	Total Temporary Access	Total Additional Inundation Area	Total Project Impacts
		Permanent (Structure)	Temporary (Construction Access)	Permanent (Headworks)	Temporary (Construction Access)	Permanent (Structure)	Temporary (Construction Access)	Additional Inundation Area				
Mixed Coastal Sage Scrub	14.09	0.00	0.00	0.01	0.02	0.00	0.00	0.58	**0.01**	**0.02**	**0.58**	**0.61**
Disturbed Mixed Coastal Sage Scrub	4.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	**0.00**	**0.00**	**0.00**
Southern Mixed Chaparral	9.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	**0.00**	**0.00**	**0.00**
Southern Mixed Chaparral/ Mixed Coastal Sage Scrub	12.72	0.01	0.12	0.00	0.02	0.00	0.00	0.00	**0.01**	**0.14**	**0.00**	**0.15**
Disturbed Southern Mixed Chaparral/Mixed Coastal Sage Scrub	0.50	0.00	0.00	0.00	0.01	0.00	0.00	0.00	**0.00**	**0.01**	**0.00**	**0.01**
Southern Mixed Chaparral/Rock Outcroppings	1.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	**0.00**	**0.00**	**0.00**
Southern Cottonwood Willow Riparian Forest	6.36	0.00	0.00	0.06	0.14	0.00	0.20	0.08	**0.06**	**0.34**	**0.08**	**0.48**
Sycamore Alluvial Woodland/Southern Riparian Forest	1.80	0.00	0.00	0.10	0.03	0.00	0.00	0.00	**0.10**	**0.03**	**0.00**	**0.13**
Southern Sycamore Alder Riparian Woodland	3.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	**0.00**	**0.00**	**0.00**
Mule Fat Scrub	5.99	0.00	0.00	0.00	0.00	0.00	0.00	1.78	**0.00**	**0.00**	**1.78**	**1.78**
Coast Live Oak Woodland	2.61	0.00	0.00	0.00	0.00	0.04	0.03	0.05	**0.04**	**0.03**	**0.05**	**0.12**
Mixed Woodland	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	**0.00**	**0.00**	**0.00**
Oak Woodland/Southern Mixed Chaparral	6.03	0.00	0.00	0.00	0.01	0.00	0.00	0.12	**0.00**	**0.01**	**0.12**	**0.13**
Ornamental	3.86	0.00	0.02	0.01	0.03	0.31	0.38	0.00	**0.32**	**0.43**	**0.00**	**0.75**
Ornamental/ Coast Live Oak Woodland	3.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	**0.00**	**0.00**	**0.00**
Ruderal	0.63	0.01	0.00	0.00	0.00	0.00	0.00	0.10	**0.01**	**0.00**	**0.00**	**0.01**
Disturbed	23.87	0.01	0.97	0.03	0.13	0.81	8.70	0.49	**0.85**	**9.80**	**0.49**	**11.14**
Developed	8.90	0.11	3.22	0.04	0.49	0.73	2.23	0.00	**0.88**	**5.94**	**0.00**	**6.82**
Open Water	4.99	0.00	0.76*	0.04*	0.09*	0.00	0.00	0.00	**0.04**	**0.85**	**0.00**	**0.89***
Rock Outcroppings	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	**0.00**	**0.00**	**0.00**
Total Work Area Acreages	**115.50**	**0.14**	**5.09**	**0.29**	**0.97**	**1.89**	**11.54**	**3.10**	**2.32**	**17.60**	**3.10**	**23.02**

* Although shown on the graphic and in this table as an impact, the work area would be dewatered during construction but would be allowed to refill this area following construction; therefore, this impact is an artifact of mapping and is described as such in the text.

Source: BonTerra Psomas 2014b (Appendix B).

b) Would the project 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 Game or U.S. Fish and Wildlife Service?

Less than Significant Impact with Mitigation. As shown in Table 4-8 and mapped on Exhibit 4-3, a total of 2.39 acres of riparian vegetation types would be impacted by all elements of the Project. The majority of this impact is located within the additional inundation area (1.86 acres comprised of 0.08 acre of southern cottonwood willow riparian forest and 1.78 acre of mule fat scrub) at the Debris Dam; this impact would not remove vegetation but may inundate the habitat in the event of a large storm. This vegetation type is located in the center of the inundation footprint and would be expected to be inundated the longest (i.e., a few weeks) during inundation events. However, riparian vegetation is adapted to periodic flooding and is expected to be able to withstand flooding events. Additionally, much of the riparian vegetation is within the basin and may be cleared periodically under existing permits for flood maintenance. In addition to the inundation area impacts, a total of 0.53 acre of southern cottonwood willow riparian forest and sycamore alluvial woodland/southern riparian forest is within the Project Work Areas. A total of 0.40 acre of southern cottonwood willow riparian forest would be disturbed: 0.20 acre for construction of the Wilderness Park Culvert Crossing (0.06 acre permanent structural, 0.14 acre temporary access); and 0.20 acre would be disturbed for temporary access in the Debris Dam Work Area. This disturbance area for the Debris Dam Work Area is associated with the reconstruction/replacement of the intake structure.

A total of 0.13 acre of sycamore alluvial woodland/southern riparian forest, including the removal of the sycamore trees located adjacent to the Wilderness Park Culvert Crossing, would be impacted in the Headworks Work Area (0.10 acre permanent structural, 0.03 acre temporary access). Southern cottonwood willow riparian forest and sycamore alluvial woodland/southern riparian woodland are special status vegetation types that are considered vulnerable by the State. These resources are also within the jurisdiction of the USACE, CDFW, and RWQCB. The loss of 0.53 acre (0.16 acre permanent structural, 0.37 acre temporary access) is considered significant. However, implementation of MM BIO-5, which requires permitting of jurisdictional resources through the applicable resource agencies, would reduce this impact to a less than significant level. Potential mitigation for the loss of the three sycamore trees located adjacent to the Wilderness Park Culvert Crossing may include transplanting the root ball(s) of the trees to a suitable riparian location, and/or utilize the woody debris from the trees to enhance habitat value at another nearby location, if determined to be feasible and if approved by the appropriate parties. At a minimum, MM AES-1 would require that new sycamore trees would be planted within a 100 foot radius of location of the original trees. This would comply with the CDFW Streambed Alteration Agreement (SAA) process, which may require a minimum of 1:1 replacement for impacted trees that are hydrologically connected to the Wash.

As shown in Table 4-8 and mapped on Exhibit 4-3, a total of 0.89 acre of open water would be within Project Work Areas. A total of 0.76 acre is within the Dam Work Area. It should be noted that the amount of open water varies substantially based on the rainfall of the year, the season (winter versus summer), and the amount of water being released from the Reservoir. It is anticipated that the Reservoir will be dewatered prior to start of construction activities, and as a result, the amount of open water impacted downstream of the Dam during construction would likely be substantially less than mapped for the Project in April 2012. Although 0.76 acre is shown in the Dam Work Area, this area would be expected to be dry during construction and would be allowed to refill with water following Project construction. A total of 0.04 acre of open water would be permanently impacted by construction of the new structures at the Headworks facility; a portion of this open water would be affected by the placement of riprap on the slope north of the structure. Additionally, 0.09 acre would be temporarily disturbed within the work area for the Headworks.

Open water would be dewatered from the Headworks Work Area during construction; open water would be allowed to refill (over the riprap) following Project construction. Though some of the areas would be affected by bank protection, open water would occur over the riprap/gunite and therefore, the impact is partially an artifact of mapping.

The Project would allow the Debris Dam to increase the inundation in the basin in order to capture water following rain events., Inundation behind the Debris Dam is reliant on releases from the Dam and the rainfall of the season, which will remain consistent with the conditions that currently exist in the basin and the time of year that the basin is inundated (winter/ early spring) would not substantially change. The Project would raise the Debris Dam height, thereby expanding the water retention capacity of the facility and would allow the inundation area to expand 3.10 acres beyond the existing basin.

Areas in the basin (currently within the existing inundation footprint) would be inundated more frequently and deeper than in the current condition. Additionally, the hillside slopes to the east of the basin and along the northern and western edges of the inundation area would experience an increased inundation area, as shown in Exhibit 4-3. The vegetation within the existing basin is dominated by willows, which have a high to very high tolerance to inundation when willows shoots (trunks, stems, leaves) are not fully submerged. As stated in Appendix B, Glentz et al (2006) found that willows can withstand a flooding duration for as much as 40 percent of the growing season (spring/summer); the study area receives most rainfall outside the growing season in the winter and early spring when willows are dormant (BonTerra Psomas 2014b). Therefore, the increased inundation capability of the Debris Dam is not expected to affect the riparian vegetation that currently exists in the basin.

Some areas adjacent to the existing basin would be newly inundated; however, these fringe areas would be inundated the least often and for the shortest duration (e.g., a few days). Although inundation would not directly remove vegetation from the study area, habitat within the inundation area would be unavailable to most wildlife when flooded. If inundation occurred during the breeding season, it could flood burrows and nests causing them to fail. However, it is anticipated that most inundation events would occur during the storm season (October 1 to April 15), which is outside the breeding season for most animals. Following each inundation event, the habitat would again be available for use with areas along the periphery becoming available most quickly. Although inundation effects would be considered adverse, they would affect a limited amount of habitat (3.10 acres) compared to the amount of habitat available in the study area and Project region. Therefore, inundation effects would be considered less than significant.

c) Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Less than Significant Impact with Mitigation. As shown in Table 4-9, Summary of Jurisdictional Resources in Project Work Areas, the Project would include a total of 3.392 acres of "Waters of the U.S." under the jurisdiction of the USACE and the RWQCB, including 0.576 acre of open water and 2.816 acres of non-wetland Waters of the U.S. These areas are mapped on Exhibits 4-4A through 4-4E, Jurisdictional Impacts. The Project would include a total of 3.708 acres under the jurisdiction of the CDFW. Jurisdictional resources are protected by Sections 401 and 404 of the Clean Water Act (CWA) and by the *California Fish and Game Code* (Sections 1600 through 1616). Impacts on jurisdictional resources would be significant prior to mitigation and would require permitting with each of the resource agencies. Implementation of MM BIO-5, which requires permitting of jurisdictional resources through the applicable resource agencies and ensures that permanent impacts on jurisdictional resources are mitigated to obtain equivalent or

superior biological functions and values as those impacted by the Project. Implementation of MM BIO-5 would reduce this impact to a less than significant level. Through the permitting process, compensatory mitigation will be determined through negotiation with each resource agency.

TABLE 4-9
SUMMARY OF JURISDICTIONAL RESOURCES IN PROJECT WORK AREAS

Jurisdictional Resources	Existing (acres)	Dam		Headworks and Wildness Park Culvert Crossing		Debris Dam		Total Permanent Structure	Total Temporary Access	Total (acres)
		Permanent Structure (acres)	Temporary Access (acres)	Permanent Structure (acres)	Temporary Access (acres)	Permanent Structure (acres)	Temporary Access (acres)			
Total USACE Jurisdiction	19.421	0.000	0.958	0.100	0.113	0.324	1.897	**0.424**	**2.968**	**3.392**
Open Water	3.003	0.000	0.482	0.011	0.083	0.000	0.000	**0.011**	**0.565**	**0.576**
Other Non-wetland "Waters of the U.S."	16.418	0.000	0.476	0.089	0.030	0.324	1.897	**0.413**	**2.403**	**2.816**
Total RWQCB Jurisdiction	19.421	0.000	0.958	0.100	0.113	0.324	1.897	**0.424**	**3.533**	**3.392**
Total CDFW Jurisdiction	26.985	0.000	1.125	0.172	0.138	0.353	1.920	**0.525**	**3.183**	**3.708**

USACE: U.S. Army Corps of Engineers; RWQCB: Regional Water Quality Control Board; CDFW: California Department of Fish and Wildlife.

Source: BonTerra Psomas 2014b (Appendix B).

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Angeles National Forest Non-Forest Land Inholding Area

Proposed Helipad Location

Santa Anita Dam

Angeles National Forest Non-Forest Land Inholding Area

Non-Forest Land Inholding Area

Study Area

Angeles National Forest Boundary

Work Areas

Permanent

Temporary Access

Jurisdictional Resources

USACE "Waters of the U.S."

Open Water

Other Non-wetland Waters

CDFW

CDFW Jurisdiction

Aerial Source: LAR-IAC 2011

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Project Work Areas – Jurisdictional Resources – Dam

Exhibit 4-4A

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

N W E S

200 100 0 200 Feet

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Proposed Helipad Location

Angeles National Forest Non-Forest Land Inholding Area

Access Road

Chantry Flats Rd

Non-Forest Land Inholding Area

Study Area

Angeles National Forest Boundary

Work Areas

Permanent

Temporary Access

Jurisdictional Resources

USACE "Waters of the U.S."

Open Water

Other Non-wetland Waters

CDFW

CDFW Jurisdiction

Aerial Source: LAR-IAC 2011

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Project Work Areas – Jurisdictional Resources – Dam (Access Road)

Exhibit 4-4B

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

N W E S

150 75 0 150 Feet

BonTerra PSOMAS

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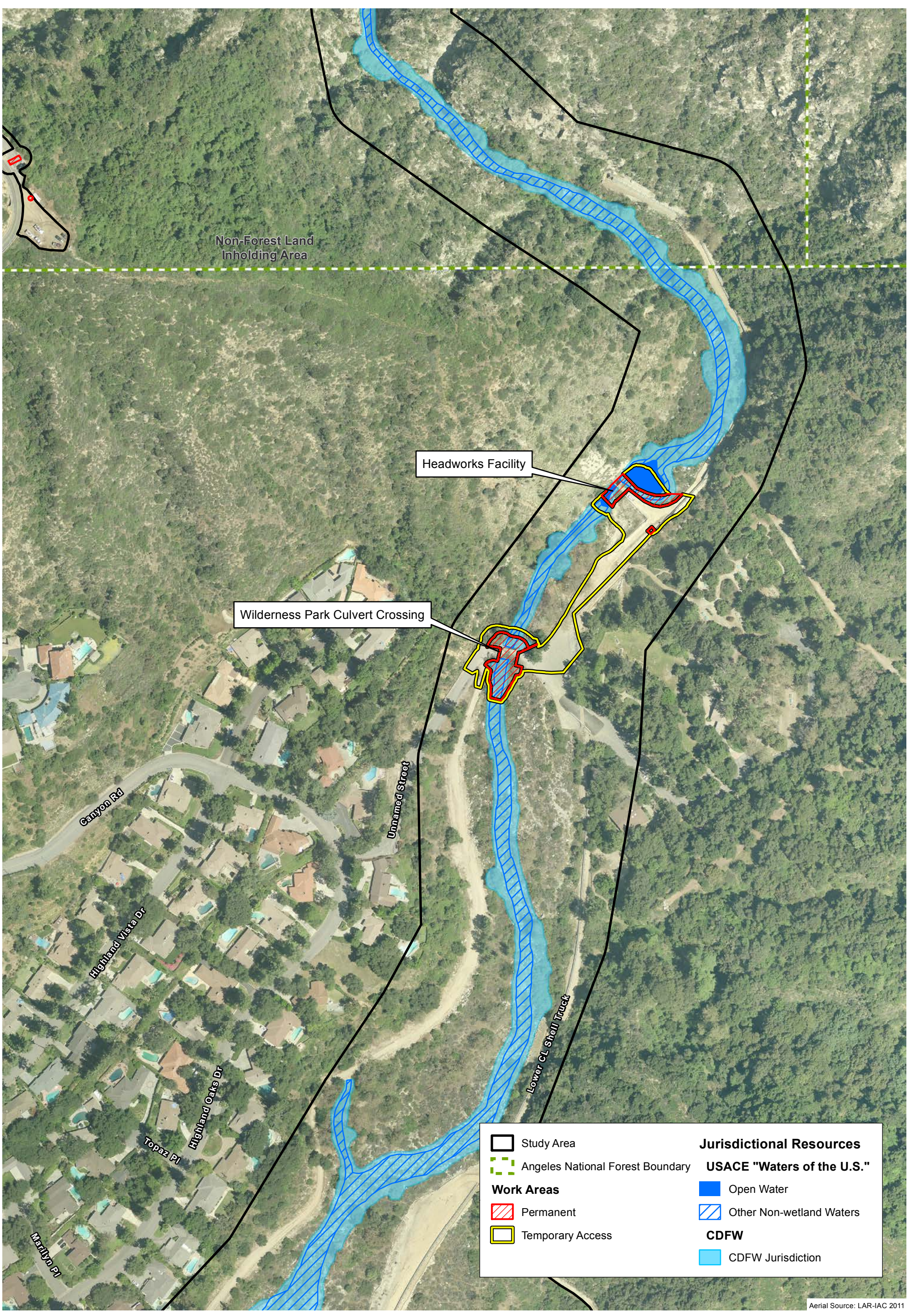

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Project Work Areas – Jurisdictional Resources – Headworks and Wilderness Park Culvert Crossing — Exhibit 4-4C

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

N W E S

200 100 0 200 Feet

BonTerra PSOMAS

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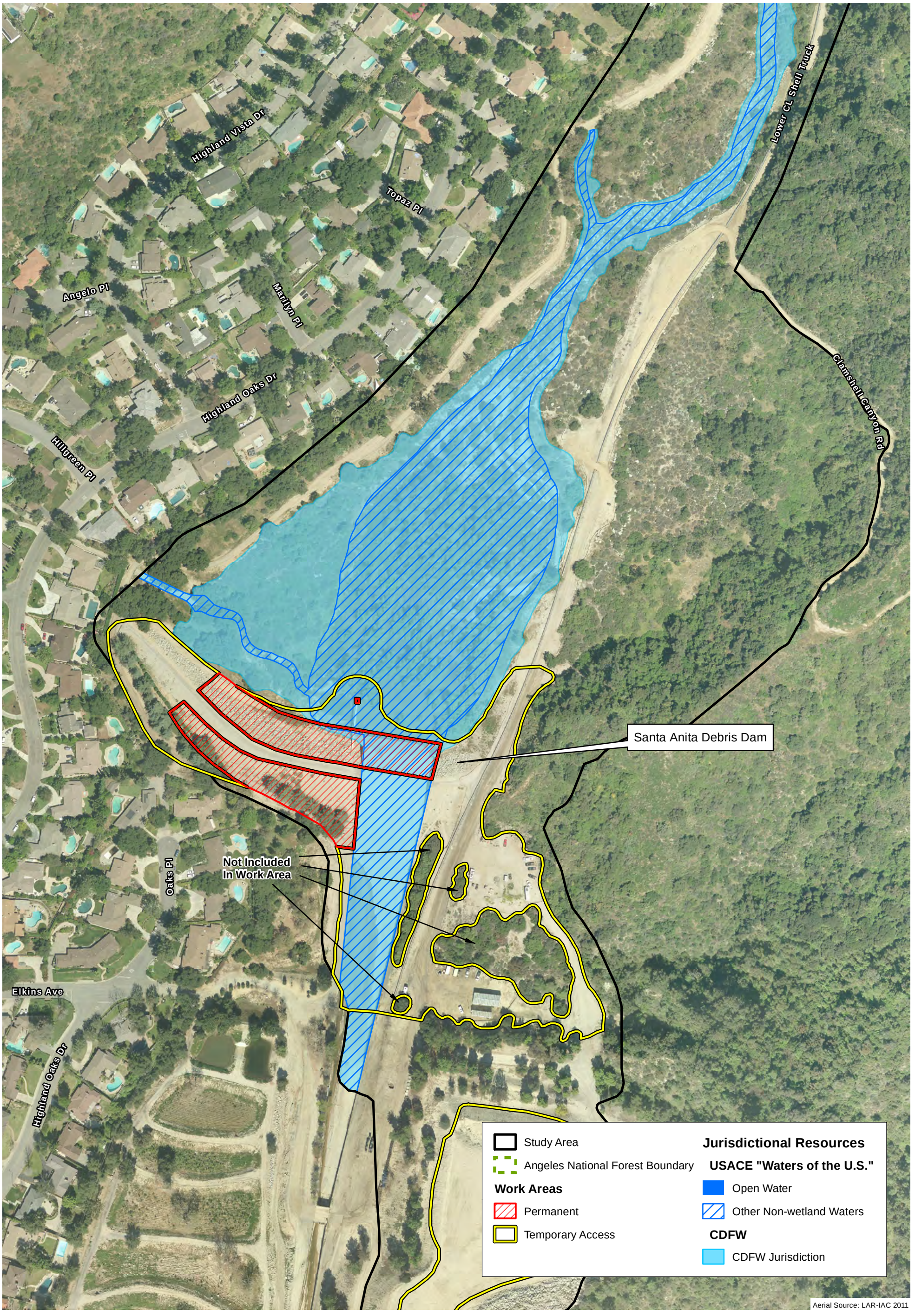

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Project Work Areas – Jurisdictional Resources – Debris Dam

Exhibit 4-4D

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

N W E S

200 100 0 200 Feet

BonTerra PSOMAS

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Project Work Areas – Jurisdictional Resources – Debris Dam (Sediment Placement Site)

Exhibit 4-4E

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

N W E S

200 100 0 200 Feet

BonTerra PSOMAS

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d) Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Less than Significant Impact. The Project Work Area currently consists of existing LACFCD flood-control facilities surrounded by open space. Construction at the Dam would be on the existing dam structure, adjacent developed areas, and adjacent gunite slopes; these changes are not expected to change wildlife movement patterns at the Dam.

Construction at the Headworks facility would replace an existing structure with a slightly larger structure and would modify the existing access road, reinforcing the slope with riprap; it would not reconfigure the road/facility substantially. Therefore, the Headworks facility would not be expected to change wildlife movement patterns at the Headworks facility. The Wilderness Park Culvert Crossing would replace the existing structure and culverts, resulting in a Culvert Crossing of the creek. Riprap would be placed along the bottom of the creek, both upstream and downstream of the Culvert Crossing structure. The Santa Anita Wash typically contains flowing water; therefore, the species moving through the culverts are expected to be small aquatic species (e.g., fish, and amphibians), which would continue to use the streambed beneath resulting from the proposed Wilderness Park Culvert Crossing. Medium- and large-sized mammals would be expected to continue to cross either over or under the Culvert Crossing/access road. Since the Project would not affect the number of visitors to the Wilderness Park or the currently low traffic volumes that cross the existing Culvert Crossing, no change to wildlife movement is expected at the Wilderness Park Culvert Crossing. If a temporary bypass crossing is constructed to allow passage to the Wilderness Park, would not be expected to disrupt wildlife movement; wildlife would be expected to be able to move through or around the structure during construction.

Project improvements at the Debris Dam would slightly expand the footprint of the existing Debris Dam structure to the east to accommodate the new spillway; however, the existing concrete spillway would be demolished and backfilled with dirt, creating a disturbed area that matches the rest of the area downstream of the existing Debris Dam. These modifications are not expected to change wildlife movement at the Debris Dam. The improvements at the Debris Dam would allow the basin to be inundated more frequently than it currently is inundated. With inundation of the Debris Dam basin, some terrestrial wildlife would have to circumnavigate the basin rather than crossing the basin bottom; this would not be substantively different than the existing conditions. Wildlife that fly or swim could continue to move freely in the basin even if it was inundated. While this effect would be adverse for some terrestrial wildlife, the basin edges would continue to be available for movement; thus, wildlife movement would not be substantially disrupted and less than significant impacts are anticipated.

Construction activities would create dust and noise within and adjacent to the work areas. During active construction, wildlife movement may be deterred by noise and human activity; however, most wildlife movement would occur at night while construction activities would occur during the day. In addition, construction activities would also be temporary in nature. Therefore, construction impacts on local wildlife movement would be considered adverse, but less than significant and no mitigation would be required.

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

Less than Significant Impact with Mitigation. The MBTA protects the nests of all native bird species, including common species such as mourning dove (*Zenaida macroura*), Anna's hummingbird (*Calypte anna*), and house finch (*Carpodacus mexicanus*). Nesting birds and raptors have potential to occur in vegetation throughout the Project area. Sections 3503 and

3503.5 of the *California Fish and Game Code* protect nesting migratory birds and raptors. As described by MM BIO-3, vegetation removal should be planned for periods that are outside the breeding season if possible. If vegetation removal would occur during the breeding season, a pre-construction nesting bird/raptor survey would be required prior to clearing to ensure compliance with the MBTA.

Exhibit 4-5A through 4-5E, Project Work Areas- Tree Locations, provides a graphical depiction of native trees located within 50 feet of the Project Work Areas. Of the 162 trees documented within the tree survey area, a total of four trees are located within Project Work Areas within the footprint for the Wilderness Park Culvert Crossing. These include three western sycamores (*Platanus racemosa*) (Tree Numbers 220-222) and one coast live oak (*Quercus agrifolia)* (Tree Number 219). All are located within CDFW jurisdiction and the oak tree is also located with the jurisdiction of the City of Arcadia.

Two sycamore trees (Tree Numbers 220 and 221) located downstream of the Culvert Crossing would be removed in order to construct the Project. One sycamore tree (Tree Number 222) is located at the edge of the permanent impact area and would likely not need to be removed; however, to provide for a conservative analysis, this tree is considered impacted. MM BIO-1, paragraph A, sets forth the mitigation requirements for these sycamore trees.

The oak tree (Tree Number 219) is also located at the edge of the permanent impact boundary; however, this tree would not need to be removed. Construction activities occurring directly adjacent to the oak tree, (and Tree Number 222 if it is able to be preserved), could harm the trees' root systems and may affect the health of the trees. Grading for the Culvert Crossing would remain outside of the edge of the oak tree's canopy wherever possible. MM BIO-1, paragraph B, sets forth requirements for protecting the oak tree, including fencing and monitoring by a Certified Arborist for any pruning, root cutting, and/or work within the canopy. Monitoring would occur for 6 months following construction and if its health declines two or more rating levels, than the tree must be mitigated for in coordination with CDFW and the City of Arcadia, requiring replacement at no less than a 1:1 ratio with a minimum replacement box size of 24 inches.

Oaks and other native trees are located near all of the Project Work Areas and could also be inadvertently affected by construction activities (e.g., stockpiling soil or other construction materials). MM BIO-1, paragraph C would be required to avoid construction impacts on native trees adjacent to Project Work Areas. Requirements include fencing placed at 1.5 times the dripline/root protection zone, labeling "tree protection areas" on construction plans, guidelines for stockpile materials and tree pruning, and coordination with certified arborists, as necessary.

At the Debris Dam, a total of 21 trees have been identified as being within the additional inundation footprint. This includes 10 coast live oak (Tree Numbers 126, 142–145, 147, 148, 150, 151, and 197), 1 Engelmann oak tree (Tree Number 149), 5 western sycamore trees (Tree Numbers 165, 177, 178, 181–184, 272) and two Goodding's black willow (Tree Number 179, 180). These trees are expected to be inundated infrequently and for short durations; therefore, no long-term impact is expected to the health of the trees. However, if natural rainfall events and/or management of the flood control facilities cause the trees to be inundated more frequently or for longer durations than can be accommodated by the trees, these trees could decline in health and may die over time. This impact would be considered potentially significant. Implementation of MM BIO-1, paragraph D, would be required ongoing annual monitoring, assessment of tree health, and a protocol for determining whether a decline in the tree's health would require mitigation for trees in the additional inundation area. With adherence to the requirements set forth in MM BIO-1, impacts to native trees would be less than significant.

Tree Survey Area

Work Areas

Permanent

Temporary Access

Trees by Species

canyon live oak *(Quercus chrysolepis)*

266

265

264

263

City of Monrovia

Unincorporated County

Aerial Source: LAR-IAC 2011

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Project Work Areas – Tree Locations – Dam

Exhibit 4-5A

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

N W E S

180 90 0 180 Feet

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Tree Survey Area

Work Areas

Permanent

Trees by Species

coast live oak *(Quercus agrifolia)*

canyon live oak *(Quercus chrysolepis)*

Engelmann oak *(Quercus englemanii)*

260

259

256

257

Unincorporated County

City of Arcadia

Aerial Source: LAR-IAC 2011

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Project Work Areas - Tree Locations - Dam (Access Road)

Exhibit 4-5B

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

N W E S

100 50 0 100 Feet

BonTerra PSOMAS

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Tree Survey Area

Work Areas

Permanent

Temporary Access

Trees by Species

western sycamore	*(Platanus racemosa)*
coast live oak	*(Quercus agrifolia)*
Goodding's black willow	*(Salix gooddingii)*

City of Monrovia
City of Arcadia

Headworks Facility

Wilderness Park Culvert Crossing

229
231
228
227
225
226
224
222
219
220
221

City of Monrovia
City of Arcadia

Aerial Source: LAR-IAC 2011

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Project Work Areas - Tree Locations - Headworks and Wilderness Park Culvert Crossing

Exhibit 4-5C

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

N W E S

100 50 0 100 Feet

BonTerra PSOMAS

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Tree Survey Area

Work Areas

Permanent

Temporary Access

Increased Inundation Area

Trees by Species

	western sycamore	*(Platanus racemosa)*
	coast live oak	*(Quercus agrifolia)*
	Engelmann oak	*(Quercus englemanii)*
	Goodding's black willow	*(Salix gooddingii)*

City of Arcadia
City of Monrovia

Santa Anita Debris Dam

Aerial Source: LAR-IAC 2011

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Project Work Areas - Tree Locations - Debris Dam

Exhibit 4-5D

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

N W E S

160 80 0 160 Feet

BonTerra PSOMAS

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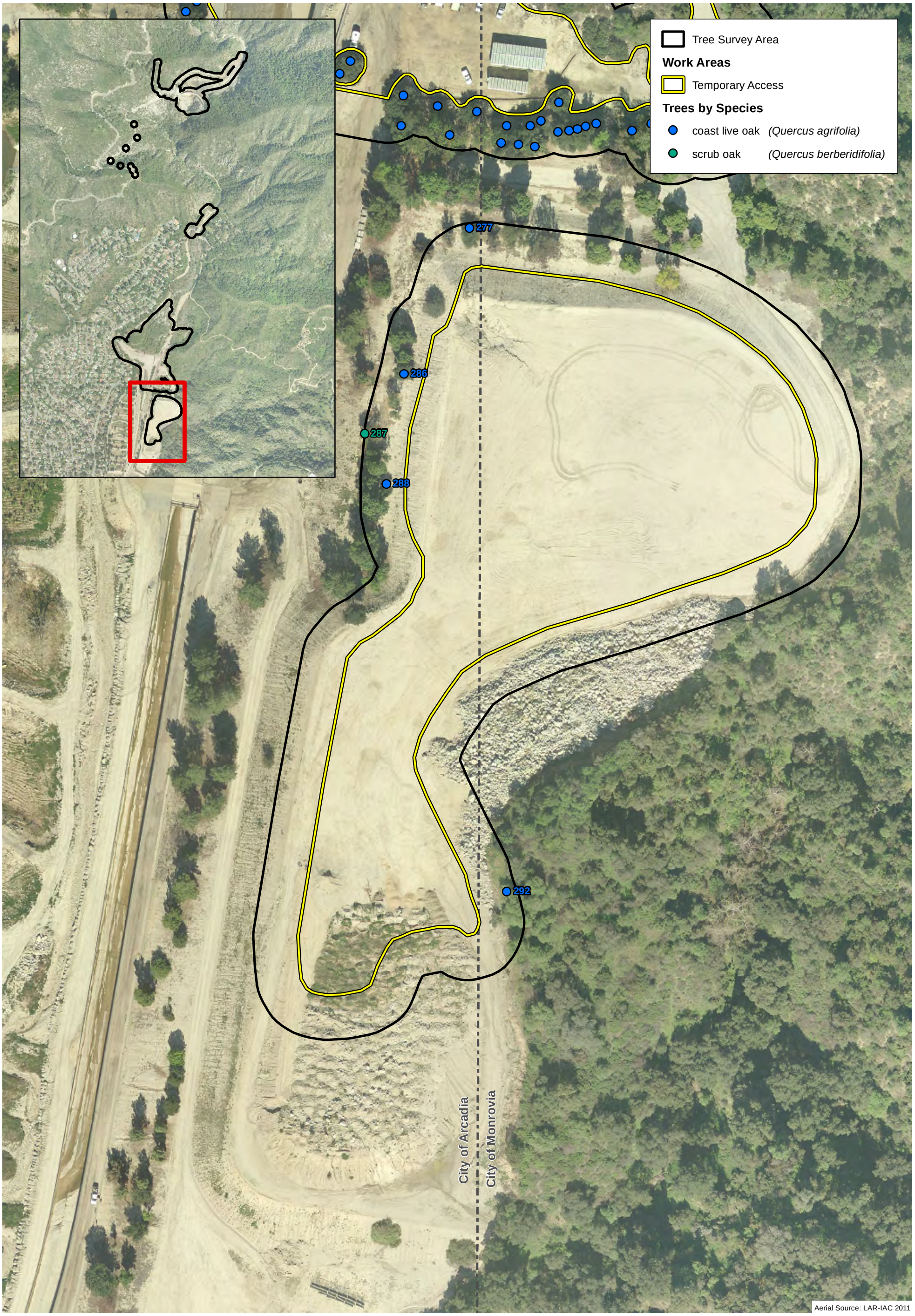

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Project Work Areas – Tree Locations – Debris Dam (Sediment Placement Site)

Exhibit 4-5E

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

N W E S

100 50 0 100 Feet

BonTerra PSOMAS

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f) Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

No Impact. As previously stated, the Project area is not located within a Los Angeles County adopted SEA. Updates to LA County's SEAs have been drafted and are currently under review. The updated SEA boundaries include the study area within the San Gabriel Canyon SEA (LACDRP 2011). However, the new boundaries will not be effective until the SEA boundaries are finalized; until then, the existing SEA boundaries will be in effect. Therefore, the Project would not conflict with the County's adopted SEA program. The Project would not conflict with the provisions of an adopted Habitat Conservation Plan; Natural Community Conservation Plan; or other approved local, regional, or State habitat conservation plan.

4.4.3 MITIGATION MEASURES

MM BIO-1 **A.** Replacement shall occur for the western sycamores (Tree Numbers 220-222) that area removed by construction of the Wilderness Park Culvert Crossing. At a minimum, impacted sycamore trees at the Culvert Crossing shall be replaced at no less than a 1:1 ratio, and the minimum box size of replacement trees shall be 24 inches. The replacement trees shall be incorporated into the Riparian Habitat Mitigation and Monitoring Plan (HMMP), as set forth in MM BIO-5, or a separate Tree HMMP shall be prepared and shall contain the same required components.

B. The oak tree adjacent to the Wilderness Park Culvert Crossing (Tree Number 219) shall not be removed. This tree shall be protected as described in subsection "C" below. However, the protective fencing for this tree shall be placed at the edge of the canopy to allow for construction to occur immediately outside its canopy. When initial vegetation removal/ground disturbance is occurring within 1.5 times the dripline/root protection zone, the work shall be monitored by a Certified Arborist who shall oversee any removal/cutting of roots necessary and shall determine if trimming of the canopy is necessary to protect the health of the tree. The Certified Arborist shall monitor the health of this tree a minimum of once per month during construction of the Wilderness Park Culvert Crossing and once per month for a period of six-months following completion of construction. Photographs shall be taken monthly to compare the overall vigor of the tree over time. The tree shall be considered "impacted" if its health rating declines two or more rating levels as referenced in the Biological Technical Report (Appendix B, see Tree Survey Report). If this occurs, in coordination with CDFW and the City of Arcadia, the tree shall be mitigated at no less than a 1:1 ratio, and the minimum box size of replacement trees shall be 24 inches. If Tree Number 220 is also preserved, protection shall follow the same requirements that are specified herein for Tree Number 219.

C. To protect native trees adjacent to Project Work Areas, the following shall be implemented within each Project Work Area:

- Brightly-colored construction fencing shall be placed around all native trees to be preserved that are located within 50 feet of Project Work Areas. The fencing shall be placed at 1.5 times the dripline/root protection zone (defined as the outer canopy edge, at least 15 feet from the trunk). These areas shall be labeled as "Tree Protection Areas" and shall be regarded as Environmentally Sensitive Areas on construction plans. If an existing

access road is within the Tree Protection Area, the Tree Protection Area may be adjusted to allow for access along the existing roadway.

- Stockpiling of materials or vehicle operation shall be prohibited within the Tree Protection Areas. If a Tree Protection Area has been adjusted to allow for an existing access road, no stockpiles or materials shall be allowed within 1.5 times the dripline/root protection zone of the native tree.
- Limbs of native trees can be pruned if necessary to allow construction equipment access. Small branches (less than three inches diameter) can be trimmed without the supervision of a Certified Arborist if less than ten percent of the total canopy is removed. If larger branches need to be removed or if more than ten percent of the total canopy would be affected, these activities shall be supervised by a Certified Arborist.
- Changes to the grade or drainage patterns in the areas surrounding a Tree Protection Area shall be avoided so that excess water does not drain to native trees, unless otherwise approved by a Certified Arborist.
- Any activities (e.g., vehicle operation) occurring within a Tree Protection Area shall be coordinated with a Certified Arborist to ensure that activities would not affect the health of the tree(s). If construction would damage or remove any trees, the Certified Arborist shall contact the appropriate jurisdiction(s) to determine mitigation and permitting requirements before the tree is impacted.
- An on-site pre-construction field meeting shall be held to inform all construction personnel of tree restrictions prior the initiation of work.

D. A subset of 20 of the native trees located within the increased inundation area shall be monitored for health over the course of 5 years following completion of the Debris Dam construction. A Certified Arborist shall monitor these trees annually each spring following the rainy season for a period of 5 years for signs of any potential negative health effects from flooding (e.g., yellowing leaves, lack of new growth, trunk decay, etc.) using the same health rating scale described to evaluate baseline conditions. Monitoring will distinguish if any changes in health may be from other outside factors. Each monitoring event shall measure and track the dbh of the trees to determine growth patterns, and other trees outside of the future inundation areas shall also be measured to compare growth rates. Photographs shall be taken annually to compare the overall vigor of each tree's crown over time. Monitoring events shall assess whether a tree has been "affected" by determining if a tree's health rating declines two or more rating levels. Any affected trees shall be monitored for a two year period, which may be in addition to the original 5 year monitoring period, to determine if their health condition subsequently improves. If an affected tree shows improvement in the health rating during this two year period, it shall be considered a "recovered" tree and would not require mitigation. If an affected tree's health condition does not improve during this 2-year period, then the tree would be considered "impacted" and would require mitigation. If this occurs, in coordination with CDFW, the tree shall be mitigated at no less than a 1:1 ratio. The replacement trees shall be incorporated into the Riparian HMMP, as set forth in MM BIO-5, or a separate Tree HMMP shall be prepared and shall contain the same required components.

MM BIO-2 At least 7 days prior to the initiation of dewatering/construction at the Dam and Headworks (and Debris Dam if ponded water is present at the time of construction), a five-day/four-night pre-construction trapping for the Pacific pond turtle shall be conducted by a qualified Biologist. Concurrently with the trapping effort, the Biologist shall also visually search for and capture two-striped garter snakes and any other special status species in the Project Work Areas. If any Pacific pond turtles, two-striped garter snakes, or other special status species are captured, they shall be relocated to a suitable site along Santa Anita Wash outside of the construction area. Prior to relocating any of these species, the USFS and the CDFW shall approve the potential relocation site(s) and methods for transferring the turtles/snakes to the relocation sites. Any non-native animal species encountered during pre-construction surveys shall be permanently removed from the reservoir.

Additionally, a qualified Biologist shall be present during the latter stages of dewatering of the reservoir to ensure that no Pacific pond turtles, two-striped garter snakes, or other special status species are stranded. If any of these species are observed during monitoring, they shall be captured by a qualified Biologist (i.e., one with the necessary approvals to handle these species) and released at the approved relocation site. Any non-native animal species encountered during dewatering of the reservoir shall be permanently removed from the reservoir. A Letter Report shall be prepared to document the results of the pre-construction surveys and monitoring; the Report shall be provided to the USFS and the CDFW within 30 days of conclusion of the survey effort.

MM BIO-3 The Project shall be conducted in compliance with the conditions set forth in the Migratory Bird Treaty Act (MBTA) and *California Fish and Game Code* with methods approved by USFWS and CDFW to protect active bird/raptor nests. The nature of the Project requires that work would be initiated during the breeding season for nesting birds (March 15–September 15) and nesting raptors (February 1–June 30). The LACFCD, in consultation with a qualified Biologist, may employ bird exclusionary measures (e.g., mylar flagging) prior to the start of bird breeding season to minimize opportunities for birds to nest within established boundaries of the Project. In order to avoid direct impacts on active nests, a pre-construction survey shall be conducted by a qualified Biologist for nesting birds and/or raptors within
3 days prior to clearing of any vegetation or any work near existing structures (i.e., within 50 feet for nesting birds and within 500 feet for nesting raptors). If the Biologist does not find any active nests within or immediately adjacent to the impact area, the vegetation clearing/construction work shall be allowed to proceed.

If the Biologist finds an active nest within or immediately adjacent to the construction area and determines that the nest may be impacted or breeding activities substantially disrupted, the Biologist shall delineate an appropriate buffer zone around the nest depending on the sensitivity of the species and the nature of the construction activity. Any nest found during survey efforts shall be mapped on the construction plans. The active nest shall be protected until nesting activity has ended. To protect any nest site, the following restrictions to construction activities shall be required until nests are no longer active, as determined by a qualified Biologist: (1) clearing limits shall be established within a buffer around any occupied nest (the buffer shall be 25–100 feet for nesting birds and 300–500 feet for nesting raptors), unless otherwise determined by a qualified Biologist and (2) access and surveying shall be restricted within the buffer of any occupied nest,

unless otherwise determined by a qualified Biologist. Encroachment into the buffer area around a known nest shall only be allowed if the Biologist determines that the proposed activity would not disturb the nest occupants. Construction can proceed when the qualified Biologist has determined that fledglings have left the nest or the nest has failed.

MM BIO-4 Water shall be drained or re-routed around Project Work Areas at least one month prior to construction to deter bats from roosting in the vicinity of the Work Areas.

If exclusionary measures have not already been installed on all potential roost structures within the Project Work Area, a pre-construction follow-up roosting bat survey (including both day and evening efforts) shall be conducted by a qualified Biologist within two weeks prior to the initiation of construction to ensure that no active day-roosts would be impacted. The day survey will involve inspecting the structures for sign of bat roosting. The evening survey will involve monitoring each potential roost site for evening emergence, conducting exit counts, and acoustic monitoring (from a half an hour before sunset to at least one hour after sunset) near potential roosts. If active bat day-roosts occur within the Project Work Area, bat exclusion devices shall be installed under the supervision of a qualified biologist prior to the start of construction.

If active bat day-roosts occur within structures proposed for removal/repair (including gunite repair on hill slopes), then exclusionary measures, such as barriers with one-way doors or permanent exclusion (e.g., caulking or wire mesh), shall be installed under the supervision of a qualified Biologist.

If active bat day-roosts occur within trees proposed for removal, then either tree removal shall be conducted between September and November (to avoid the bat maternity and the bat hibernation season), or the tree removal will occur under the supervision of a qualified Biologist and will utilize phased tree trimming. If avoidance of bat hibernation and bat maternity season is not feasible, then exclusionary measures, such as netting or phased tree trimming, shall be implemented after the evening roost emergence under the supervision of a qualified Biologist. Once bats have been excluded from the trees to be removed, then tree removal can proceed.

MM BIO-5 Prior to initiation of Project activities, the Los Angeles County Flood Control District (LACFCD) shall obtain all necessary permits for impacts to U.S. Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), and CDFW jurisdictional areas. Mitigation for the loss of jurisdictional resources shall be negotiated with the resource agencies during the regulatory permitting process. Potential mitigation options shall include one or more of the following: (1) payment to a mitigation bank or regional riparian enhancement program (e.g., invasive plant or wildlife species removal) and/or (2) restoration of riparian habitat either on site or off site at a ratio of no less than 1:1, determined through consultation with the above-listed resource agencies. If in-lieu mitigation fees are required, prior to the initiation of any construction-related activities, the LACFCD shall pay the in-lieu mitigation fee to a mitigation bank/enhancement program for the in-kind (equivalent vegetation type and acreage) replacement of impacted jurisdictional resources. If a Restoration Program is required, prior to the initiation of any construction-related activities, the LACFCD shall prepare and submit a Riparian Habitat Mitigation and Monitoring Program (HMMP) for USACE and CDFW approval. If a Riparian HMMP is required, it shall contain the following items:

A. Responsibilities and qualifications of the personnel to implement and supervise the plan. The responsibilities of the Landowner, Specialists, and Maintenance Personnel that would supervise and implement the plan shall be specified.

B. Site selection. The mitigation site shall be determined in coordination with the USACE, CDFW, and RWQCB. The site shall either be located in a dedicated open space area on County land, USFS land, or off-site land shall be purchased.

C. Seed source. Seeds (or plantings) used shall be from local sources (within ten miles of the Project area) to ensure genetic integrity.

D. Site preparation and planting implementation. Site preparation shall include (1) protection of existing native species; (2) trash and weed removal; (3) native species salvage and reuse (i.e., duff); (4) soil treatments (i.e., imprinting, decompacting); (5) temporary irrigation installation; (6) erosion-control measures (i.e., rice or willow wattles); (7) seed mix application; and (8) container species planting.

E. Schedule. A schedule shall be developed which includes planting in late fall and early winter, between October 1 and January 30.

F. Maintenance Plan/Guidelines. The Maintenance Plan shall include (1) weed control; (2) herbivory control; (3) trash removal; (4) irrigation system maintenance; (5) maintenance training; and (6) replacement planting.

G. Monitoring plan. The Monitoring Plan shall include (1) qualitative monitoring (i.e., photographs and general observations); (2) quantitative monitoring (i.e., randomly placed transects); (3) performance criteria, as approved by the above-listed resource agencies; (4) monthly reports for the first year and reports quarterly thereafter; and (5) annual reports for five years, which shall be submitted to the resource agencies on an annual basis. The site shall be monitored and maintained for five years to ensure successful establishment of riparian habitat within the restored and created areas.

H. Long-term preservation. Long-term preservation of the site shall also be outlined in the conceptual Mitigation Plan to ensure the mitigation site is not impacted by future development.

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

Information in this section is derived from the *Phase I Cultural Resources Assessment for the Santa Anita Stormwater Flood Management and Seismic Strengthening Project, County of Los Angeles, California* dated October 2014 and prepared by BonTerra Psomas. This report is provided in its entirety in Appendix C. Information was also derived from the *Cultural Resources Assessment for the Proposed Santa Anita Riser Modification and Reservoir Sediment Removal Project, Los Angeles County*, dated November 2007and prepared by EDAW (EDAW 2007).

4.5.1 EXISTING CONDITIONS

Cultural Resources Records Search at the South Central Costal Information Center

A literature review of documents on file at the South Central Coastal Information Center (SCCIC) at California State University, Fullerton was completed by Patrick Maxon of BonTerra Psomas on December 3, 2012. Twenty-two archaeological studies have been previously conducted within a one-mile radius of the Project site. Four of the studies included at least a portion of the Project site. Twelve previously recorded resources are located within one mile of the Area of Potential Effect (APE). One recorded resource is located within the Project site. Table 4-10, Cultural Resources Studies Within One Mile of the Project Site, identifies the previous cultural resources studies that include at least a portion of the Project site.

TABLE 4-10
CULTURAL RESOURCES STUDIES WITHIN
ONE MILE OF THE PROJECT SITE

Report Number	Author(s) (Year)	Type of Study/Comments
LA3308	Bissell (1993)	Cultural Resources Reconnaissance of the Madison/Cloverleaf Specific Plan Area, Monrovia, Los Angeles County, California
LA3372	Triem (1993)	Historic Resources Evaluation and Management Plan, United State Forest Service, Angeles National Forest
LA6859	LSA Associates (1996)	Arcadia General Plan
LA10598	Strauss et al. (2007)	Cultural Resources Assessment for the Proposed Santa Anita Riser Modification and Reservoir Sediment Removal Project, Los Angeles County, California
Source: BonTerra Psomas 2014d (Appendix C).		

Table 4-11 describes the known cultural resources within one mile of the Project site. One cultural resource noted in Table 4-11 is within the APE of the Project, P-19-188707 (Dam), and is detailed below.

TABLE 4-11
CULTURAL RESOURCES ON OR WITHIN
ONE MILE OF THE PROJECT SITE

Site Number	Recorder/(Year)	Comment	Resource Within APE
CA-LAN-1951H	McIntyre (1991)	Zion Trail	No
CA-LAN-2102H	Becker et al. (1993)	Lux Cabin	No
CA-LAN-2103H	Becker and Gregory (1993)	Two Chimneys	No
CA-LAN-2014H	Becker and Stevens (1993)	Survey Monument 2	No
CA-LAN-2106H	Bissell (1993)	Survey Monument 1	No
CA-LAN-2109H	Becker and Gregory (1993)	Concrete Channel	No
P-19-150017	Gregory (1993)	Shinoda Property – 610-620 Cloverleaf Dr	No
P-19-150018	Gregory (1993)	Quest's End – 1250 Cloverleaf Dr	No
P-19-150019	Gregory (1993)	Clover Crest, Lux Arboretum Annex	No
P-19-150025/26	Stone (1992)	Sierra Madre Ranger Station	No
P-19-187819	Huckabee(2006)	Chantry Road, 2N41	No
P-19-188707	**EDAW (2007)**	**Santa Anita Dam Complex**	**Yes**

APE: Area of Potential Effects

Bold entries indicate resources that are on the Project site.

Source: BonTerra Psomas 2014d (Appendix C).

Resources Within the Project Site

P-19-188707

This site is the Santa Anita Dam Complex. It consists of the Dam, shelter house, hoist house, relief quarters, storage shed, sluice gate control house, Dam Operator's house and garage, and paint shed. The Dam was completed in 1927 while the remaining resources were built after 1936. The complex was recorded by EDAW, Inc. (2007) as a part of the Santa Anita Sediment Removal and Riser Modification Project and was subsequently evaluated for significance by EDAW's Christy Dolan. It was determined to be not significant under any California Register of Historical Resources (CRHR) or National Register of Historic Places (NRHP) significance criteria (BonTerra Psomas 2014d).

U.S. Forest Service Cultural Resources Records Search

A second records search was undertaken at the USFS office in Arcadia. Mr. Maxon and Architectural Historian Pam Daly met Forest Service Archaeologist Darrell Vance at the USFS' Arcadia headquarters on January 9, 2013. Mr. Vance pointed out the location of reports and site records which BonTerra Psomas accessed independently. The reports and records documented work done outside of the Project's APE. No sites or studies are recorded within the APE. It was determined that the EDAW assessment completed for the Santa Anita Riser Modification Project and the accompanying site record for the Dam were missing from USFS archives. The 2007 EDAW report and site record was provided to Mr. Vance (BonTerra Psomas 2014d).

Native American Sacred Lands File Review

The Native American Heritage Commission's (NAHC) Search of the Sacred Lands File on December 21, 2012, did not identify the presence of Native American cultural resources on the Project site. The NAHC provided a list of Native American groups and individuals that might have knowledge of the religious and/or cultural significance of resources that may be in and near the Project site. Each of these groups and individuals were mailed an informational letter on January 2, 2013, describing the Project and requesting any information regarding resources that may exist on or near the Project site.

Table 4-12, Native America Consultation Summary, lists the results of consultation. To date, two responses have been received from the Native American groups and individuals contacted. All Native American correspondence can be viewed in Appendix C.

TABLE 4-12
NATIVE AMERICAN CONSULTATION SUMMARY

Date Sent	Native American Contact	Tribe/Affiliation	Comments
1/2/13	Ron Andrade	LA City/County Native American Indian Commission	No response was received.
1/2/13	Cindi Alvitre	Ti'At Society/Inter-Tribal Council of Pimu	No response was received.
1/2/13	John Tommy Rosas	Tongva Ancestral Territorial Tribal Nation	No response was received.
1/2/13	Anthony Morales	Gabrielino/Tongva San Gabriel Band of Mission Indians	Mr. Morales stated that the presence of water always increases the chances of presence of Native American cultural material and/or human remains and that all due diligence should be completed to determine the impacts of the Project on those resources.
1/2/13	Sam Dunlap	Gabrielino Tongva Nation	No response was received.
1/2/13	Robert Dorame	Gabrielino Tongva Indians of California Tribal Council	Mr. Dorame stated that this area was his family's territory and it is sensitive for the presence of archaeological resources. In the event of a discovery of resources during grading, Mr. Dorame would like to be informed.
1/2/13	Bernie Acuña	Gabrielino-Tongva Tribe	No response was received.
1/2/13	Linda Candelaria	Gabrielino-Tongva Tribe	No response was received.
1/2/13	Andrew Salas	Gabrielino Band of Mission Indians	No response was received.
1/2/13	Conrad Acuña	Gabrielino-Tongva Tribe	No response was received.
Source: BonTerra Psomas 2014d (Appendix C).			

Archaeological Field Survey

On January 9, 2013, BonTerra Psomas' Patrick Maxon and Pamela Daly conducted a pedestrian survey of the APE. Although there are additional built environment elements interspersed among these areas, for the purposes of archaeological resources, the survey area can be described as three distinct areas: the Dam; the Headworks and Wilderness Park Culvert Crossing; and the Debris Dam. Additionally, Mr. David Smith of BonTerra Psomas surveyed several Dam ancillary facilities in May 2014.

The Dam was not directly accessed, but a large part of it (mainly on the southwest side of the Dam) could be clearly seen from the access road just west of Project site. The Headworks area and Wilderness Park Culvert Crossing were examined for exposed archaeological resources and none were noted. The Debris Dam area was examined on foot and by car. The entire Debris Dam area has been greatly modified by modern human activity, yet much of the current surface within the Project area is undisturbed.

Historic Resources Survey

On January 9, 2013, Pamela Daly of Daly and Associates conducted a pedestrian survey of the Project area to identify and assess the significance of portions of the Santa Anita flood-control facilities. Ms. Daly identified and evaluated several historic resources on the site that are a part of the flood-control facilities. They include:

- **Dam and Sediment Transport Tunnel.** The complex includes the Dam; the Dam Operator's house and garage; a paint and explosives shed; a sluice gate control house; and a shelter house. The complex was previously evaluated and determined not eligible for listing on the CRHR or NRHP. The sediment transport tunnel was constructed to dispose of sediment that had accumulated in the Santa Anita Reservoir.
- **Headworks and Wilderness Park Culvert Crossing.** This structure intercepts the flow released from the Dam and redirects portions of it to the Spreading Grounds or allows it to continue to the Debris Dam. The channel crossing, which is located approximately 450 feet southwest of the Headworks and provides access to the Wilderness Park, consists of a concrete-slab road bed that is 29 feet wide and set on concrete walls. Four large steel culvert pipes have been set in concrete under the road bed to allow the flow of water and protect the Culvert Crossing.
- **Debris Dam and Spillway.** This area consists of an embankment constructed of compacted earth; an excavated area within the basin to catch debris; an outlet conduit to permit normal flow of water to pass through and drain the basin after a storm; and a concrete spillway to permit water to flow out of the basin when it is filled during a storm.

All the elements described above were evaluated for significance and all were determined not eligible for listing in the NRHP or CRHR (BonTerra Psomas 2014d). Refer to Daly (2013) in Appendix C.

4.5.2 IMPACT ANALYSIS

Regulatory Requirements

RR CUL-1 Should archaeological resources be found during ground-disturbing activities for the Project, an Archaeologist shall be hired to first determine whether it is a "unique archaeological resource" pursuant to Section 21083.2(g) of the *California Public Resources Code* (PRC) or a "historical resource" pursuant to Section 15064.5(a) of the State CEQA Guidelines. If the archaeological resource is determined to be a "unique archaeological resource" or a "historical resource", the Archaeologist shall formulate a mitigation plan in consultation with the LACFCD that satisfies the requirements of the above-referenced sections. If the Archaeologist determines that the archaeological resource is not a "unique archaeological resource" or "historical resource", s/he may record the site and submit the recordation form to the California Historic Resources Information System at the South Central Coastal Information Center at California State University, Fullerton.

RR CUL-2 If human remains are encountered during excavation activities, all work shall halt in the immediate vicinity of the discovery and the County Coroner shall be notified (*California Public Resources Code* §5097.98). The Coroner shall determine whether the remains are of forensic interest. If the Coroner, with the aid of the Archaeologist approved by the LACFCD, determines that the remains are prehistoric, s/he will contact the Native American Heritage Commission (NAHC). The NAHC shall be responsible for designating the most likely descendant (MLD), who will be responsible for the ultimate disposition of the remains, as required by Section 7050.5 of the *California Health and Safety Code.* The MLD shall make his/her recommendation within 48 hours of being granted access to the site. The MLD's recommendation shall be followed if feasible, and may include scientific removal and non-destructive analysis of the human remains and any items associated with Native American burials (*California Health and Safety Code* §7050.5). If the landowner rejects the MLD's recommendations, the landowner shall rebury the remains with appropriate dignity on the property in a location that will not be subject to further subsurface disturbance (*California Public Resources Code* §5097.98).

Impact Discussion

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

Less than Significant Impact. The Dam was constructed from 1924 to 1927 by the LACFCD. The Dam complex was previously evaluated in 2007 by EDAW as part of the EIR for the Sediment Removal Project and found not eligible for the NRHP. To be eligible for listing in the NRHP, a property must be at least 50 years of age and possess significance in American history and culture, architecture, or archaeology. A property of potential significance must meet one or more of four established criteria:

A. Associated with events that have made a significant contribution to the broad patterns of our history; or

B. Associated with the lives of persons significant in our past; or

C. Embody the distinctive characteristics of a type, period, or method of construction or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

D. Yield, or may be likely to yield, information important in prehistory or history.

The criteria for eligibility of listing in the CRHP are based upon NRHP criteria, but are identified as 1–4 instead of A–D. To be eligible for listing in the CRHP, a property must be at least 50 years of age and possess significance at the local, state, or national level, under one or more of the following four criteria:

1. It is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States; or

2. It is associated with the lives of persons important to local, California, or national history; or

3. It embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values; or

4. It has yielded, or has the potential to yield, information important in the prehistory or history of the local area, California, or the nation.

From 1914 to the 1950s, the LACFCD built numerous dams and structures throughout Los Angeles County in an attempt to control destructive flooding. The Dam and associated buildings were part of that effort. Although the on-site structures were constructed during a substantial County-wide flood-control effort, they played a small role relative to the larger dams such as San Gabriel or Big Tujunga. Therefore, they are not considered eligible under Criteria A or 1 for their association with significant events. The Dam is associated with George Goethals, who oversaw the construction of the Panama Canal. Goethals oversaw all of the dams that were built under the same bond issue and he appears to have no special association with the Dam. Therefore, Criteria B and 2 do not apply. Neither the Dam nor its associated structures embody a distinctive type, period or method of construction. Nor do they represent the same style or period of construction, having been constructed in stages between 1927 and 1946. Therefore, they are not eligible under Criteria C or 3. Criteria D and 4 are usually reserved for archaeological sites. Since the Dam has been fully researched, there is no further information potential for the Santa Anita Dam. Therefore, the Dam complex is not considered eligible under Criterion D or 4 (EDAW 2007).

In the 1950s, the Headworks and Debris Dam were constructed to control and capture the flow of water from the Dam to protect life and property as populations rose. The Sediment Transport Tunnel was constructed only to provide access to the basin of the Dam reservoir so that accumulated silt could be removed and deposited elsewhere. Surveyors were able to use the most modern technology available in the form of laser beams to direct the mining operations associated with constructing a nine-foot-wide tunnel through the mountain (BonTerra Psomas 2014d).

Under NRHP and/or CRHR criterion relating to the association of the built-environment structures located within the APE with significant historical events that exemplify broad patterns of our history, the Project elements (i.e., the Dam and Sediment Transport Tunnel, the Headworks and Wilderness Park Culvert Crossing, and the Debris Dam and spillway) do not appear to qualify as significant historic resources individually or collectively. Throughout the world, debris basins and dams (masonry, earthen or timber) have been constructed by both private and public entities to control seasonal rainfall and to protect people and property. The structures located within the APE are just one of many flood-control systems that were constructed in the canyons of San Gabriel Mountain. There is no evidence that any of the structures in the APE are eligible for listing.

Under NRHP and/or CRHR criterion relating to the Project's association with persons of historic importance, the Project elements do not appear to qualify, individually or collectively, as significant resources. The design plans for the structures located in the Santa Anita Wash were prepared by LACFCD staff engineers or the USACE as part of their normal tasks and duties. There is no evidence that any of the structures in the APE are eligible for listing.

Under NRHP and/or CRHR criterion relating to the distinctive characteristics of a type, period, region, or method of construction, the built-environment structures located in the APE are not significant as they do not, individually or collectively, embody any innovative engineering design or method of construction, or high artistic design. The Headworks was designed using common technology to channel water from the Dam towards the Debris Dam or into the pipe leading to the Sierra Madre Spreading Grounds. The Debris Dam was constructed by excavating a water containment area in the Santa Anita Wash, and a spillway was erected to hold heavier debris

back during high rainfall events. The technology used to create the basin and associated spreading grounds were commonplace, as was the use of concrete to hold, channel, divert, and control the water as it came down from the foothills. The Project elements do not appear to present any technological achievement in the history of water systems locally, regionally or nationally, and are therefore not eligible for listing either individually or collectively.

Based upon a survey of the aboveground historic period resources in the APE, the facilities and structures that would be affected by Project implementation have not yielded, nor do they appear to have the potential to yield, information important to the history of the local area, California, or the nation pursuant to NRHP and/or the CRHR. Therefore, impacts to historic resources would be less than significant and no mitigation is required.

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

Less than Significant Impact. The proposed improvements to the Dam facilities would be limited to existing engineered structures and gunite surfaces and are not expected to disturb any native sediments. However, construction activities at the Headworks and the Wilderness Park Culvert Crossing would require excavations within the native soils of the creekbed. Construction at the Debris Dam would require disturbance of accumulated sediment and possibly native soils within the water retention area to install the new/replacement intake tower and the Debris Dam embankment.

Given that the proposed construction activities have the potential to disturb native soils, it is possible that archaeological materials would be uncovered during construction activities at the Headworks/Wilderness Park Culvert Crossing and Debris Dam facilities. Although the likelihood of encountering archaeological resources in the APE is considered low, the *California Health and Safety Code* and the *California Public Resources Code* describes procedures for monitoring and protocols to be followed in the event that archaeological resources are discovered during construction activities, as described in RR CUL-1. Compliance with RR CUL-1 would ensure that impacts would be less than significant.

c) Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less than Significant Impact. The proposed improvements to the Dam facilities would be limited to existing engineered structures and gunite surfaces and would not require deep excavations that may disturb underlying fossil remains. Construction activities at the Dam would have no impact on paleontological resources or unique geologic features. At the Headworks and the Wilderness Park Culvert Crossing, the proposed improvements would involve localized excavations, shallow grading, and fill materials to construct the new facilities, but would not excavate into paleontologically sensitive rock units. Because the Project would not excavate into paleontologically sensitive rock units, the Project would have a less than significant impact on paleontological resources and no mitigation is required.

d) Would the project disturb any human remains, including those interred outside of formal cemeteries?

Less than Significant Impact. There is no indication that human remains are present within the Project area. The records search and field survey indicates no evidence of human remains on or near the Dam, Headworks/Wilderness Park Culvert Crossing, or Debris Dam. Recently deposited sediment, debris, and vegetation that flowed with stormwaters into the Debris Dam are not expected to contain any human remains, including those interred outside formal cemeteries.

In the unlikely event of an unanticipated encounter with human remains in Project site, the *California Health and Safety Code* and the *California Public Resources Code* require that any activity in the area of a potential find be halted and the Los Angeles County Coroner be notified, as described in RR CUL-2. Compliance with RR CUL-2 would ensure that impacts would be less than significant.

4.5.3 MITIGATION MEASURES

There would be no significant impacts related to cultural resources; therefore, no mitigation measures are required.

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

4.6.1 EXISTING CONDITIONS

The Project area is located in the southwestern section of San Gabriel Mountains, which occupy the central part of the Transverse Ranges (east-west orientation) at the northern margin of the Los Angeles Basin. According to the California Geological Survey's (CGS') 2010 Geologic Map of California, the Project site is underlain by Mesozoic-age plutonic rock[9] (CGS 2012a). This area, which is one of the most seismically active regions in California, is characterized by tectonic compression across east-west-trending reverse and strike-slip faults. This tectonic setting is believed to be caused by the bend in the San Andreas Fault Zone north of Los Angeles.

The CGS has published a Seismic Hazard Zone Map and associated Report for the Mt. Wilson 7.5-minute quadrangle, which includes the Project site. The site consists predominantly of Pleistocene and Holocene alluvial deposits composed primarily of sand, silt, and gravel. Elevations range up to 6,000 feet above msl in the San Gabriel Mountains in the northwest portion of the

[9] Plutonic rock is formed at considerable depth by crystallization of magma and/or by chemical alteration, and is characteristically medium- to coarse-grained and of granitoid texture (The American Geologic Institute 1984).

quadrangle (CGS 1998). The elevation within the immediate project area ranges from 1,318 feet above msl at Santa Anita Reservoir to 590 feet above msl at the existing sediment placement site.

As shown on Exhibit 4-6, Fault Map, the Sierra Madre Fault runs through the Project site, and the Raymond Fault is located two miles to the south. The Sierra Madre Fault is a reverse fault that is considered capable of producing an earthquake with a probable magnitude of 6.0 to 7.0 on the Richter Scale (SCEDC 2013). In addition, there are several regional faults that could produce significant ground shaking at the Project site, including the San Gabriel Fault and the San Andreas Fault. The site is not within an Alquist-Priolo Earthquake Fault Zone (CGS 2012c).

According to the Los Angeles County Seismic Safety Element, the Project site is located within an area identified by the California Division of Mines and Geology (CDMG) as having the potential for earthquake-induced landslides (County of Los Angeles 1980; CGS 1999). In addition, the Project site is identified as susceptible to liquefaction hazards, with the lands to the north and south of the site identified as susceptible to landslide hazards (CGS 1999). Exhibit 4-7, Landslide and Liquefaction Hazard Zones, shows the portions of the Project site that are located within a Seismic Hazard Zone, which are areas susceptible to liquefaction and landslides (CGS 1999).

4.6.2 IMPACT ANALYSIS

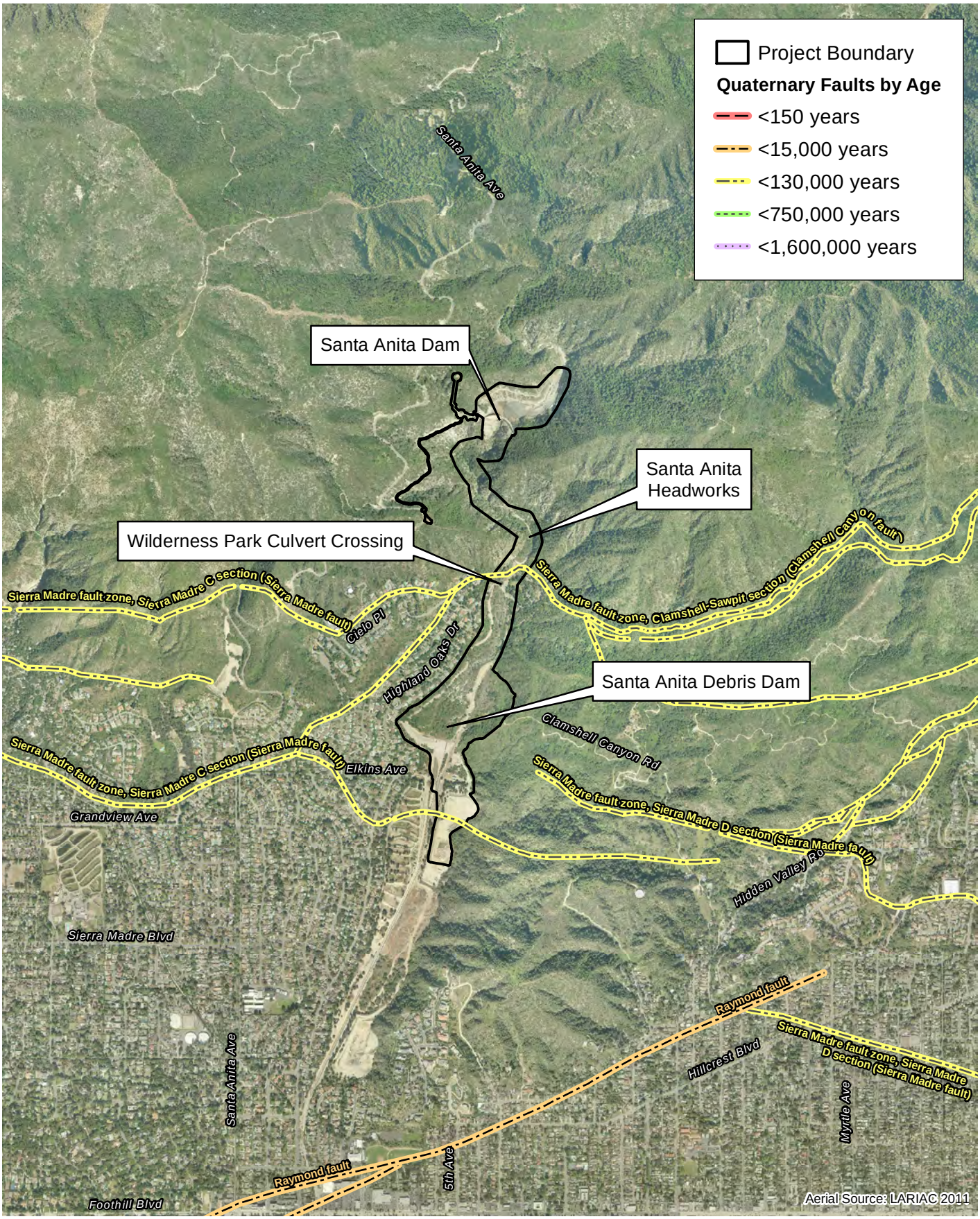
Project Design Features

PDF GEO-1 The Project shall be designed and constructed in compliance with the *Standard Specifications For Public Works Construction* (Greenbook), Construction Specifications Institute, and DSOD guidelines for seismic stability to ensure the structural integrity of proposed site improvements against seismic shaking. In case of conflict between two specifications, the stricter specification shall apply.

PDF GEO-2 A detailed geotechnical investigation shall be conducted to assess potential geotechnical issues at the Debris Dam. This investigation shall conform with all applicable County requirements and other pertinent criteria, including DSOD and Greenbook standards. Specific issues to be evaluated in the Project geotechnical investigation shall include seismic-related ground rupture, ground acceleration, and liquefaction, as well as expansive/corrosive soils; other types of soil/geologic instability (including subsidence, oversized materials and excavations); and any other issues deemed appropriate by the LACFCD and/or the Geotechnical Engineer. The geotechnical investigation shall be submitted to the LACFCD for review and approval prior to commencement of construction. All applicable requirements and recommendations identified in the approved geotechnical investigation shall be incorporated into the Project design and/or construction specifications as appropriate.

Regulatory Requirements

None required.



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Fault Map

Exhibit 4-6

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

N W E S

2,000 1,000 0 2,000 Feet

Bonterra PSOMAS

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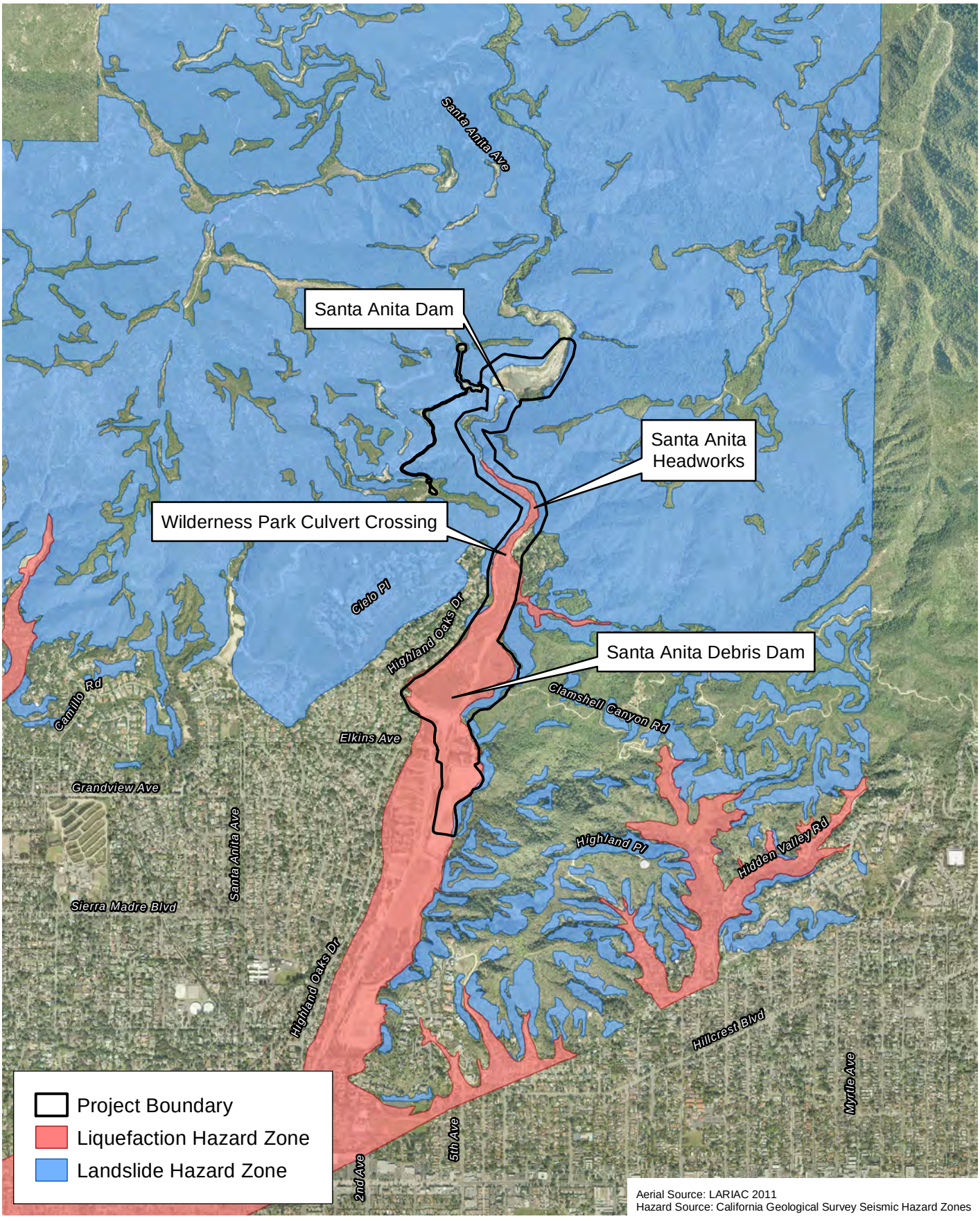

Aerial Source: LARIAC 2011
Hazard Source: California Geological Survey Seismic Hazard Zones

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Landslide and Liquefaction Hazard Zones

Exhibit 4-7

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

N
W E
S

2,000 1,000 0 2,000
Feet

Bonterra PSOMAS

(Rev: 9-30-2014 CJS) H:\PAS\Projects\CoLADPW\J166\Graphics\MND\Ex4-7_landslide_liquefaction.pdf

Impact Discussion

a) Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

ii) Strong seismic ground shaking?

Less Than Significant Impact. As discussed above, the Sierra Madre Fault Zone runs through the Project site. Although the Project site is not located within an Alquist-Priolo Earthquake Fault Zone, the Raymond Fault is a designated Alquist-Priolo Earthquake Fault Zone that lies two miles to the south of the Project site. In addition, several potentially active fault zones are located in the Project vicinity, including the San Gabriel and San Andreas Fault Zones.

Segments of the Sierra Madre Fault have historically experienced surface rupture; the most recent was during the Holocene era. The interval between surface ruptures on this fault is expected to be several thousand years (SCEDC 2013). Additionally, the site could be subject to strong ground shaking in the event of an earthquake. As within most of Southern California, the Project area is within a seismically active region and there is the possibility of strong seismic ground shaking at the Project site. The CGS estimates the peak ground acceleration (PGA) having a 10 percent probability of being exceeded in 50 years at the Project site as approximately 0.74g, or 74 percent the force of gravity, based on the USGS' and CGS' Probabilistic Seismic Hazards Assessment (PSHA) Model (CGS 2012d, 1998). However, seismic ground shaking from major faults in the region is not anticipated to be greater than at any other sites in Southern California and is not considered to pose an unusual risk to the Project site.

The potential for surface rupture on the Sierra Madre Fault Zone, as well as the potential for strong ground shaking, are existing seismic hazards that affect the Project site; as such, Project implementation would not exacerbate these seismic hazards. The primary purpose of the Project is to improve public safety by addressing seismic safety and other structural issues at the Dam, Headworks/Wilderness Park Culvert Crossing, and Debris Dam. As stated in PDF GEO-1, the Project would be designed and constructed in compliance with Greenbook, Construction Specifications Institute, and DSOD standards and would incorporate the recommendations of the geotechnical investigation report as described in PDF GEO-2. The Project would not result in a significant adverse impact by exposing people or structures to major seismic hazards beyond what is considered normal for the Southern California region, and there are no significant impacts related to seismic ground shaking. However, PDFs GEO-1 and GEO-2 would ensure that the Project would be designed and constructed in accordance with the applicable standards.

a) Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

iii) Seismic-related ground failure, including liquefaction?

iv) Landslides?

Less than Significant with Mitigation. According to the Los Angeles County Seismic Safety Element and as shown on Exhibit 4-7, the Project site is located within an area identified by the California Division of Mines and Geology (CDMG) as having the potential for earthquake-induced landslides (County of Los Angeles 1980; CGS 1999). In addition, the Project site is identified as

susceptible to liquefaction hazards, with the lands to the north and south of the site identified as susceptible to landslide hazards (CGS 1999).

The potential for liquefaction on the Sierra Madre Fault Zone, as well as the potential for landslides, are existing seismic hazards that affect the Project site; as such, implementation of the Project would not exacerbate these seismic hazards. The primary purpose of the Project is to improve public safety by addressing seismic safety and other structural issues at the Dam, Headworks/Wilderness Park Culvert Crossing, and Debris Dam and bring them in compliance with County and DSOD design requirements and seismic safety standards, as required by PDFs GEO-1 and GEO-2. For example, reinforcement of the Debris Dam would address liquefaction concerns with settlement/separation between the spillway and the embankment and would remove potential for failure caused by bending of the spillway walls.

However, the Project would result in temporary hazards for workers who will be on the site during construction. The greatest risk to the on-site crew would be the potential for landslides and falling debris, particularly in the Dam and Headworks areas, which are adjacent to steep canyon walls. MM HAZ-1 identifies the need for the contractor to prepare a Site-Specific Health and Safety Plan that includes a designated Site Health and Safety Officer; an Access and Evacuation Plan; and identification of site hazards. Therefore, through implementation of MM HAZ-1, there would be a less than significant risk to on-site crew related to potential exposure of people or structures to risks associated with landslides.

b) Would the project result in substantial soil erosion or the loss of topsoil?

Less than Significant Impact. While most of the proposed improvements would occur on existing facilities, construction of the Project would result in some ground surface disruption during excavation and grading activities that could create the potential for erosion to occur and result in the loss of topsoil. In particular, relocation of the spillway at the Debris Dam would involve the removal of a portion of the adjacent hillside. Additionally, excavation and grubbing activities within the creekbed could lead to sedimentation downstream.

Since the Project site is greater than one acre, the construction contractor would prepare and comply with a Stormwater Pollution Prevention Plan (SWPPP), which would include erosion-control measures. Compliance with RR HYD-1 regarding the implementation of non-stormwater management and materials pollution control Best Management Practices (BMPs), as outlined in the SWPPP for the Project, would reduce pollutants in the runoff. Compliance with the State Water Resources Control Board's (SWRCB's) Order No. 2003-0017-DWQ (RR HYD-2) regarding discharges from the Project would further reduce pollutants from being discharged into the downstream portion of the creekbed. Therefore, impacts related to potential soil erosion or loss of topsoil would be less than significant and no mitigation is required.

c) Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?

Less than Significant Impact. As indicated in Threshold 4.6(a)(iii–iv) above and shown in Exhibit 4-7, the Project site and surrounding area are identified as unstable and susceptible to liquefaction and landslide hazards, respectively. However, the potential for landslides, liquefaction, and liquefaction-related lateral spreading are existing seismic hazards that affect the Project site; as such, implementation of the Project would not exacerbate these seismic hazards and impacts would be less than significant.

Land subsidence and collapse occur due to the loss of surface elevation due to the removal of subsurface support. These issues may be caused by activities that contribute to the loss of support materials within the underlying soils (e.g., agricultural practices or the overdraft of an aquifer). The Project would not include any construction activities that would remove subsurface support or draw down groundwater levels. Implementation of the Project would help improve the recharge of the local groundwater basin. As stated in PDF GEO-1, the Project would be designed and constructed in compliance with Greenbook, Construction Specifications Institute, and DSOD standards and would incorporate the recommendations of the geotechnical investigation report as described in PDF GEO-2. Therefore, impacts related to potential subsidence would be less than significant and no mitigation is required.

d) Would the project 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?

No Impact. Expansive soils are soils that swell when they absorb water and shrink as they dry. Pure clay soils and claystone are good examples of expansive soils. The hazard associated with expansive soils is that they can overstress and cause damage to the foundation of buildings set on top of them. Since the replacement structures are located within an area already developed and all applicable improvements would be required to comply with County and DSOD design requirements and seismic safety standards, as required by PDFs GEO-1 and GEO-2, there would be no impacts related to expansive soils.

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

No Impact. The Project does not include the construction of any septic systems. The construction crew would be served by portable toilets that would be brought to the site at the construction activities; regularly cleaned; and removed at the end of construction activities. Therefore, no impacts associated with use of a septic system or other alternative wastewater disposal systems would occur.

4.6.3 MITIGATION MEASURES

Incorporation of MM HAZ-1 would ensure that potential impacts due to geological hazards would be less than significant.

4.7 GREENHOUSE GAS EMISSIONS	Potentially Significant Impact	Less Than Significant with Mitigation	Less than Significant Impact	No Impact
Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

Information in this section is derived from the *Air Quality and Greenhouse Gas Emissions Impact Analysis for the Santa Anita Stormwater Flood Management and Seismic Strengthening Project, County of Los Angeles, California* dated June 2014 and prepared by BonTerra Psomas. This report is provided in its entirety in Appendix A.

4.7.1 EXISTING CONDITIONS

Climate change refers to any significant change in measures of climate, such as average temperature, precipitation, or wind patterns over a period of time. Climate change may result from natural factors, natural processes, and human activities that change the composition of the atmosphere and alter the surface and features of the land. Significant changes in global climate patterns have recently been associated with global warming, which is an average increase in the temperature of the atmosphere near the Earth's surface; this is attributed to an accumulation of greenhouse gas (GHG) emissions in the atmosphere. GHGs trap heat in the atmosphere which, in turn, increases the Earth's surface temperature. Some GHGs occur naturally and are emitted to the atmosphere through natural processes, while others are created and emitted solely through human activities. The emission of GHGs through fossil fuel combustion in conjunction with other human activities appears to be closely associated with global warming.

GHGs, as defined under California's Assembly Bill (AB) 32, include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). General discussions on climate change often include water vapor, ozone, and aerosols in the GHG category. Water vapor and atmospheric ozone are not gases that are formed directly in the construction or operation of development Projects, nor can they be controlled in these projects. Aerosols are not gases. While these elements have a role in climate change, they are not considered by either regulatory bodies (e.g., CARB) or climate change groups (e.g., the California Climate Action Registry [CCAR]) as gases to be reported or analyzed for control. Therefore, no further discussion of water vapor, ozone, or aerosols is provided.

GHGs vary widely in the power of their climatic effects; therefore, climate scientists have established a unit called global warming potential (GWP). The GWP of a gas is a measure of both potency and lifespan in the atmosphere as compared to CO_2. For example, since CH_4 and N_2O are approximately 25 and 298 times more powerful than CO_2, respectively, in their ability to trap heat in the atmosphere, they have GWPs of 25 and 298, respectively (CO_2 has a GWP of 1). Carbon dioxide equivalent (CO_2e) is a quantity that enables all GHG emissions to be considered as a group despite their varying GWP. The GWP of each GHG is multiplied by the prevalence of that gas to produce CO_2e. The atmospheric lifetime and GWP of selected GHGs are summarized in Table 4-13, Global Warming Potentials and Atmospheric Lifetimes.

TABLE 4-13
GLOBAL WARMING POTENTIALS AND ATMOSPHERIC LIFETIMES

Greenhouse Gas	Atmospheric Lifetime (years)	Global Warming Potential (100-year time horizon)
Carbon Dioxide (CO_2)	50.0–200.0	1
Methane (CH_4)	12.0	25
Nitrous Oxide (N_2O)	114.0	298
HFC-134a	14	1,430
PFC: Tetrafluoromethane (CF_4)	50,000.0	7,390
PFC: Hexafluoroethane (C_2F_6)	10,000.0	12,200
Sulfur Hexafluoride (SF_6)	3,200.0	22,800
HFC: hydrofluorocarbons; PFC: perfluorocarbons Source: BonTerra Psomas 2014a (Appendix A).		

Assembly Bill 32 – the California Global Warming Solutions Act of 2006

AB 32, the California Global Warming Solutions Act of 2006, recognizes that California is the source of substantial amounts of GHG emissions. The statute states that:

> Global warming poses a serious threat to the economic well being, public health, natural resources, and the environment of California. The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems.

In order to avert these consequences, AB 32 establishes a State goal of reducing GHG emissions to 1990 levels by the year 2020, which is a reduction of approximately 16 percent from forecasted emission levels, with further reductions to follow (BonTerra Psomas 2014a).

County of Los Angeles General Plan

For the purposes of the Project, the County's existing General Plan is the applicable planning document, as the revised General Plan has not yet been approved. The existing General Plan was last updated in 1980. The Conservation and Open Space Element includes a section on air resources. GHGs are not addressed in the air resources section.

The County is in the process of updating the General Plan, and released their Revised Draft 2035 General Plan in October 2013. The Air Quality Element summarizes air quality issues and outlines the goals and policies in the General Plan that will improve air quality and reduce the GHG emissions. It states "The South Coast Air Basin, which includes the majority of Los Angeles County, continues to have among the worst air quality ratings in the country. Additionally, climate change, caused by an increase in greenhouse gas emissions, is one the most pressing environmental issues faced by all levels of government. Air pollution and climate change pose serious threats to the environment, economy, and public health" (BonTerra Psomas 2014a).

4.7.2 IMPACT ANALYSIS

Regulatory Requirements

None required.

Impact Discussion

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

Less than Significant Impact. Neither the County nor the LACFCD has adopted or established any quantitative GHG emissions significance criteria for GHG emissions. In April 2008, the SCAQMD convened a Greenhouse Gas Significance Threshold Working Group to provide guidance to local lead agencies on determining the significance for GHG emissions in their CEQA documents. The Working Group adopted a philosophy similar to recommendations made by other agencies in California to identify Significance Screening Levels, or thresholds, for GHG emissions. Projects with GHG emissions less than these levels or thresholds would be determined to have less than significant impacts. Projects with GHG emissions greater than the Significance Screening Level would be required to implement specific performance standards or purchase offsets to reduce their climate change impact to less than significant levels. Consequently, the County has determined, pursuant to the discretion afforded by Sections 15064.4(a) and 15064.4(b) of the State CEQA Guidelines, to quantify the GHG emissions from the Project based on the methodologies proposed by SCAQMD's GHG CEQA Significance Threshold Working Group.

On December 5, 2008, the SCAQMD Governing Board adopted an interim screening threshold for industrial projects where SCAQMD is the lead agency of 10,000 metric tons of carbon dioxide equivalent per year ($MTCO_2e$/year). In September 2010, the working group proposed to expand this 10,000 $MTCO_2e$/year threshold to other lead agency industrial projects. Although the SCAQMD Governing Board has yet to consider this proposal, because the Project is not a residential or commercial land use development project, the SCAQMD threshold for industrial projects is the most applicable to the project and is used in the analysis below. It is noted that the use of the SCAQMD's screening threshold is selected as a threshold for the Project because it is located in the South Coast Air Basin and these thresholds are based on the best available information and data at the time of preparation of this document. The development of CEQA project-level thresholds is an ongoing effort on State, regional, and County levels, and significance thresholds may differ for future projects based on further data and information that may be available at that time.

Construction

Construction GHG emissions are generated by vehicle engine exhaust from construction equipment, on-road hauling trucks, vendor trips, and worker commuting trips. The Project activities (e.g., demolition, grading, building) are identified by start date and duration, as described in Table 3-1. Each activity has associated off-road equipment (e.g., dozers, backhoes, cranes) and on-road vehicles (e.g., haul trucks, concrete trucks, worker commute vehicles), as described in Table 3-2. Construction GHG emissions were calculated by using CalEEMod as described in Section 4.3, Air Quality. The results are output in $MTCO_2e$ for each year of construction. The estimated construction GHG emissions for the Project are shown in Table 4-14.

GHG emissions generated from construction activities are finite and occur for a relatively short-term period of time. Unlike the numerous opportunities available to reduce a project's long-term GHG emissions through design features, operational restrictions, use of green-building materials, and other methods, GHG emissions-reduction measures for construction equipment are relatively limited. Therefore, SCAQMD staff recommended that construction emissions be amortized over a 30-year project lifetime, so that GHG reduction measures will address construction GHG emissions as part of the operational GHG reduction strategies. As shown in Table 4-14, Estimated GHG Emissions From Construction, the 30-year amortized construction emissions would be 22 $MTCO_2e$/yr.

TABLE 4-14
ESTIMATED GHG EMISSIONS FROM CONSTRUCTION

Year	Emissions ($MTCO_2e$)
2015	43
2016	604
Total	**648**
Annual Emissions*	**22**

$MTCO_2e$: metric tons of carbon dioxide equivalent

Total does not add due to rounding.

* Combined total amortized over 30 years

Source: BonTerra Psomas 2014a (Appendix A).

Operations

Once the Project is complete, there would be no long-term changes to the regular inspection and maintenance operations at the Dam, Headworks, or Debris Dam. Helipad operations would only result in one or two helicopter trips per year. Therefore, any Project-generated change in GHG emissions would be nominal.

As shown in Table 4-14, the estimated increase in annual GHG emissions, including amortized construction emissions, would be 22 $MTCO_2e$/yr. This value may be compared with and is less than the proposed SCAQMD screening threshold of 10,000 $MTCO_2e$/yr for industrial projects. It is accepted as very unlikely that any individual development project would have GHG emissions of a magnitude to directly impact global climate change; therefore, any impact would be considered on a cumulative basis (BonTerra Psomas 2014a). Because the proposed project's GHG emissions would be less than 10,000 $MTCO_2e$/yr, the emissions would not be cumulatively considerable. The impact would be less than significant; no mitigation is required.

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

Less Than Significant Impact. As discussed above, the principal State plan and policy adopted for the purpose of reducing GHG emissions is AB 32. The quantitative goal of AB 32 is to reduce GHG emissions to 1990 levels by 2020. Statewide plans and regulations, such as GHG emissions standards for vehicles and the Low Carbon Fuel Standard, are being implemented at the statewide level, and compliance at the specific plan or project level is not addressed. Therefore, the Project does not conflict with these plans and regulations.

The Project would contribute to regional efforts to reduce dependence on imported water supplies by providing increased opportunities to recharge stormflows emanating from the Santa Anita Canyon Watershed. As described in Section 1 of this IS/MND, the Project has been identified as a regional-level project that could help to increase recharge of the local groundwater basin and thereby increase local water supplies. Thus, the Project would reduce the GHG emissions associated with importing water from outside of the LACFCD.

As the Project does not conflict with State or County plans and regulations, it would result in a less than significant impact.

4.7.3 MITIGATION MEASURES

There would be no significant impacts related to GHG emissions; therefore, no mitigation measures are required.

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

4.8.1 EXISTING CONDITIONS

While no hazardous materials are present at the Headworks/Wilderness Park Culvert Crossing and Debris Dam, there are hazardous materials (e.g., propane, diesel gasoline, oils, paints) used for the operation and maintenance activities at the Dam.

The California Department of Toxic Substance Control (DTSC) maintains the EnviroStor Database, which compiles hazardous material sites and generators that have been identified for clean up or that are permitted to handle hazardous materials by various regulatory agencies. There are no hazardous material sites or generators at or near the Project site, as listed in the EnviroStor Database. The nearest hazardous materials site identified in the EnviroStor Database is a military ordnance facility located approximately 3.5 miles to the west in Pasadena (DTSC 2013a). The Project site is also not listed in the Hazardous Waste and Substances Sites (Cortese) List developed in compliance with Section 65962.5 of the *California Government Code* (DTSC 2013b).

The USEPA maintains the Envirofacts Database, which compiles lists of facilities subject to permitting for their potential environmental hazards to air, water, waste, land, toxics, radiation, regulatory compliance, and other hazards. There are no facilities that pose hazards related to hazardous materials use at or near the Project site, as listed in the Envirofacts Database. The nearest facility identified in the Envirofacts Database is a facility called "Sierra Madre Mad Scientist" in Sierra Madre, approximately 1.7 miles west of the Project site (USEPA 2013a).

The Project site is located within a Very High Fire Hazard Severity Zone (VHFHSZ) (CAL FIRE 2012). The potential for wildland fire is high due to the proximity of the open space and the Angeles National Forest, which includes chaparral, brush, and trees that could be highly flammable during fire season.

Several overhead power lines run through the Project site, supplying electricity to the various flood-control facilities. There are no gas transmission pipelines or hazardous liquid pipelines running near the Project site, as mapped by the National Pipeline Mapping System (PHMSA 2013).

4.8.2 IMPACT ANALYSIS

Regulatory Requirements

RR HAZ-1 Activities at the Project site shall comply with existing federal, State, and local regulations regarding hazardous material use, storage, disposal, and transport to prevent Project-related risks to public health and safety. All on-site generated waste that meets hazardous waste criteria shall be stored, manifested, transported, and disposed of in accordance with the *California Code of Regulations* (Title 22) and in a manner to the satisfaction of the local Certified Unified Program Agency (CUPA) and the U.S. Forest Service, as applicable.

Impact Discussion

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

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

Less than Significant Impact. The Project would primarily involve the use of common hazardous materials, including oil and grease, solvents, diesel fuel, and other chemicals in vehicles, trucks, and heavy equipment. Construction of the Project would not require extensive or on-going use of acutely hazardous materials or substances. Construction activities would be short-term and would be phased over the course of approximately a year and a half, and would involve the limited transport, storage, use, and/or disposal of common construction-related hazardous materials.

The use of hazardous materials at the Project site could pose risks to construction workers or lead to soil and water contamination, if not properly stored, used, or disposed. Due to the presence of water bodies, the potential for water contamination and the likelihood that accidentally contaminated soils would end in the water could create a public health and safety hazard.

To prevent environmental hazards, the handling of hazardous materials used in equipment would have to be conducted in accordance with existing regulations (RR HAZ-1). These regulations include the transport of hazardous materials; on-site storage and use of hazardous materials; and

procedures to implement in the event of a spill. In addition, under RR HYD-1, the Project would be implementing an SWPPP, as discussed in Section 4.9, Hydrology and Water Quality, which would include hazardous waste management BMPs and a sampling and analysis plan for the Contractor to report and mitigate for any hazardous material discharges that may contaminate waters. Compliance with RR HAZ-1 and RR HYD-1 would ensure that impacts related to hazards would be less than significant.

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

Less than Significant Impact. There are no schools within ¼ mile of Project site that could be affected by hazardous emissions or materials from the Project. The nearest school or day care facility is Highland Oaks Elementary School, located approximately 0.5 mile southwest of the Project site on Santa Anita Avenue and Virginia Road. However, it is anticipated that construction-related trucks would pass by the school, as it is located along the primary haul route. Compliance with RR HAZ-1 would ensure that the transport of hazardous materials would be conducted in accordance with existing regulations. Further, MM TRA-1 requires that heavy-duty diesel truck trips be scheduled to avoid peak drop-off and pick-up hours at the school. Therefore, impacts would be less than significant.

d) Would the project 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?

No Impact. As stated above, the Project site is not on a list of hazardous materials sites identified on the Cortese list or the Envirostor and Envirofacts Databases (DTSC 2013a, 2013b; USEPA 2012a, 2012b). The Project site is primarily open space and has not historically been used for industrial purposes. Therefore, implementation of the Project would have no impact associated with hazardous materials sites.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?

f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?

Less than Significant Impact. There are no airports within two miles of the Project site. The closest airport to the Project site is the El Monte Airport, which is located approximately five miles south of the Project site. However, the Project would include construction of a helipad to provide aerial access to the Dam in the event of an emergency. It is anticipated that the helipad would only be used one or two times per year. In compliance with RR TRA-3, the helipad would require approval and permits from a number of agencies, including the Federal Aviation Administration (FAA), Caltrans, and Airport Land Use Commission. All helicopter operations would comply with the requirements of each of the regulatory agencies. The introduction of a helipad at this location would help improve emergency response to the Project site and surrounding area. Therefore, impacts related to air traffic hazards would be less than significant.

g) Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Less than Significant Impact. Construction activities would be staged on the Project site and would not interfere with any current emergency response plans or emergency evacuation plans for local, State, or federal agencies. The Project may temporarily impact adjacent roadways during construction, in particular the Wilderness Park Culvert Crossing, which would intermittently have no access or limited access for about six to eight weeks sometime between July 2015 and January 2016 when Culvert Crossing replacement is expected to occur. However, there are alternative roadways that could provide emergency access to the Project site, including Lower Clamshell Truck Trail through the City of Monrovia, which provides alternative access to the Wilderness Park and Debris Dam.

The Project would also include replacement of the Dam Operator's house with a helipad to provide aerial access to the Dam in the event of an emergency. It is anticipated that the helipad would only be used one or two times per year. The addition of a helipad would allow for improved emergency access to the Dam, as well as the other facilities downstream, especially if any of the access roads get obstructed. Although the Dam Operator would no longer reside at the Dam, he/she would still be on-site daily and available on-call after hours. The Project would include remote control capabilities that provide redundant control options from multiple off-site locations. The Dam also has a built-in safety mechanism to automatically pass water through the Dam once the reservoir surface reaches an elevation of 1,230 feet.

Although there are no significant impacts related to this issue, MM HAZ-1 identifies the need for the contractor to prepare a Site-Specific Health and Safety Plan that includes a designated Site Health and Safety Officer; an Access and Evacuation Plan; and identification of site hazards. Additionally, RR TRA-1 would ensure that construction traffic would be managed in compliance with Greenbook standards, as discussed in Section 4.16, Transportation. RR TRA-1 would ensure that roadways providing access to the Project site and the surrounding areas would not be impacted during Project construction in such a way that would physically impair or impede emergency response or evacuation. Therefore, implementation of MM HAZ-1 and RR TRA-1 would ensure that impacts related to emergency evacuation plans would remain less than significant.

h) Would the project expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

Less than Significant with Mitigation. The Project site is located within a VHFHSZ (CAL FIRE 2012). The potential for wildland fire is high due to the proximity of the open space and the Angeles National Forest, which includes chaparral, brush, and trees that could be highly flammable during fire season.

Project activities would not involve construction or operation of habitable structures in wildland areas or promote new development in wildland areas. However, Project activities have the potential to increase the risks associated with wildfires due to the presence of construction equipment due to leaks from heavy equipment; the use of flammable liquids; and presence of combustion engines, among others. In order to reduce wildfire risks and to protect workers during Project activities, MM HAZ-2 requires preparation of a Fire Protection Plan to include emergency reporting procedures; emergency notification, evacuation, and/or relocation of all persons on site; procedures for "hot work" operations; management of hazardous materials and removal of combustible debris; maintenance of emergency access roads; identification of exit routes and assembly areas; and identification of fire apparatus. The Fire Protection Plan would be prepared

and distributed to involved parties prior to commencement of any construction activities. Additionally, the Project includes construction of a helipad to provide aerial access to the Dam in the event of an emergency, including wildfires. The introduction of a helipad at this location would help improve emergency response to the Project site and surrounding area. Implementation of MM HAZ-2 would ensure that short-term wildfire hazards associated with Project activities would be less than significant. Impacts related to wildland fires would be less than significant after mitigation.

4.8.3 MITIGATION MEASURES

MM HAZ-1 Prior to commencement of any construction activities, the LACFCD shall require that the Contractor prepare a Site-Specific Health and Safety Plan for review and approval. The Plan shall be implemented throughout the construction activities. The Site-Specific health and safety plan shall be prepared in accordance with the Occupational Safety and Health Administration's (OSHA's) Safety and Health Regulations for Construction (29 *Code of Federal Regulations* 1926) and shall include, a Site Health and Safety Officer; an Access and Evacuation Plan; identification of site hazards; and response protocols in the event of an earthquake or landslide.

MM HAZ-2 Prior to commencement of any construction activities, a Fire Protection Plan shall be prepared that includes emergency reporting procedures; emergency notification, evacuation, and/or relocation of all persons on site; procedures for "hot work" operations; management of hazardous materials and removal of combustible debris; maintenance of emergency access roads; identification of exit routes and assembly areas; and identification of fire apparatus. The Fire Protection Plan shall be distributed to involved parties at least two weeks prior to commencement of any construction activities.

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

4.9.1 EXISTING CONDITIONS

The Project site is located within the 834-square-mile Los Angeles River Watershed. The Watershed is highly modified, with an upper 360-square-mile portion covered by forest or open space, and the remaining 474 square miles developed with highly urbanized land uses. The Watershed encompasses and is shaped by the path of the Los Angeles River.

Surface Drainage

As previously discussed, surface runoff from the Santa Anita Canyon Watershed drains along natural courses towards the Santa Anita Wash, which runs north-south beginning at Dam. The purpose of the Dam is to decrease peak flood flow by retaining stormwater and discharging it at

controlled release rates. The released flows continue downstream to the Headworks facility, which intercepts the flows from the Dam and either allow the flows to continue downstream or be diverted to the spreading grounds. Flows that continue downstream enter the Debris Dam, where debris carried by floodwaters is trapped and thereafter flows can be diverted to the Santa Anita Spreading Grounds, where the water is then recharged into the Raymond Basin. Water that is not diverted to the Santa Anita Spreading Grounds or overtops the Debris Dam spillway during storm events is conveyed downstream in a concrete-lined channel that is a tributary of the Rio Hondo, which hydraulically connects the Los Angeles and San Gabriel River Watersheds through the Whittier Narrows Reservoir. Water in the Rio Hondo eventually flows to the Los Angeles River near the City of Downey.

Flooding

Historically, stormwater flows from the San Gabriel Mountains were unpredictable and often led to damaging floods. Continued urbanization within the watershed has increased the amount of impermeable surface, resulting in an increase in surface flows and flooding. Ultimately, the LACFCD was created and flood-control measures (e.g., dams, debris basins, and river channels) were implemented to address the increased flows. Dams and detention basins, such as the Dam and Debris Basin, are designed to decrease peak flood flow and to discharge detained stormwater at controlled release rates. Debris basins retain debris carried by floodwaters and also allow for infiltration of stormwater into the groundwater basin.

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map indicates that the Project site is located in Flood Zone D, which means there are possible but undetermined flood hazards. The majority of the Project area is located within the inundation hazard area of the Dam (Arcadia 2010b).

Groundwater

As previously discussed, the Project area is situated within the Los Angeles-San Gabriel Hydrologic Unit, which covers most areas of Los Angeles County. Within this hydrologic unit, the Project site overlies the Raymond Groundwater Basin, a 41-square-mile groundwater basin located in the northwest part of the San Gabriel Valley. The basin extends from La Cañada Flintridge and the San Rafael Hills on the west to Santa Anita Canyon on the east and is bound on the north by contact with consolidated basement rocks of the San Gabriel Mountains and on the south by the Raymond Fault.

The main water-bearing materials of the Raymond Basin are unconsolidated Quaternary alluvial sediments deposited by streams originating in the San Gabriel Mountains. Recharge to the Raymond Basin mainly occurs from direct percolation of precipitation and percolation of ephemeral stream flow from the San Gabriel Mountains, as well as the Sierra Madre and Santa Anita Spreading Grounds. Additional water enters the basin as underflow through fractures systems in the San Gabriel Mountains. Precipitation averages in the basin range from about 19 inches in the valley, to 25 inches in upland areas, with the average precipitation over the basin approximating 21 inches annually (DWR 2004).

Historic high groundwater levels in the project area range from less than 40 feet below ground surface in the lower portion of the project area to greater than 100 feet below ground surface in the upper portion of the project area (CGS 1998).

4.9.2 IMPACT ANALYSIS

Regulatory Requirements

RR HYD-1 Prior to the start of construction activities, the LACFCD shall file a Permit Registration Document (PRD) with the State Water Resources Control Board (SWRCB) in order to obtain coverage under that National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges Associated with the Construction and Land Disturbance Activities (Order No 2009-009-DWQ, NPDES No. CAS000002) or the latest approved general permit. This permit is required for construction activities (including demolition, clearing, grading, and excavation) and other land disturbance activities that result in the disturbance of one acre or more of total land area. The PRD consists of a Notice of Intent (NOI); Risk Assessment; Site Map; Storm Water Pollution Prevention Program (SWPPP); annual fee; and a signed certification statement. Pursuant to permit requirements, the Contractor shall develop and incorporate Best Management Practices (BMPs) for reducing or eliminating construction-related pollutants in site runoff.

In addition, during construction, the LACFCD shall comply with the appropriate requirements listed in the adopted Municipal Separate Storm Sewer System (MS4) Permit (Order No. R4-2012-0175, NPDES No. CAS004001), which regulates municipal discharges of stormwater and non-stormwater.

RR HYD-2 Discharges during construction are regulated under SWRCB Order No. 2003-0017-DWQ, "General Waste Discharge Requirements for Dredge and Fill Discharges That Have Received State Water Quality Certification", which requires compliance with all conditions of the Water Quality Certification issued by the Regional Water Quality Control Board (RWQCB). Compliance with the Water Quality Certification issued by the RWQCB would ensure that any discharge from the Project does not conflict with the applicable provisions of Sections 301 (Effluent Limitations), 302 (Water Quality Related Effluent Limitations), 303 (Water Quality Standards and Implementation Plans), 306 (National Standards of Performance), and 307 (Toxic and Pretreatment Effluent Standards) of the Clean Water Act, or any other applicable requirements of State law.

Impact Discussion

a) Would the project violate any water quality standards or waste discharge requirements?

f) Would the project otherwise substantially degrade water quality?

Less than Significant Impact. The Project site is within the jurisdiction of the Los Angeles (Region 4) Regional Water Quality Control Board (RWQCB). The RWQCB has developed a Water Quality Control Plan entitled *Los Angeles Region Basin Plan for the Coastal Watersheds of Los Angeles and Ventura County* (Basin Plan) to protect the water quality of surface and ground waters of the region (RWQCB 1995). The Basin Plan designates beneficial uses; sets narrative and numerical objectives to protect beneficial uses of water resources; and describes implementation programs. Beneficial uses are processes, habitats, organisms, or features that require water and are considered worthy of protection.

Beneficial uses listed in the Basin Plan for the Santa Anita Wash include the following:

- MUN (Municipal and domestic supply)
- GWR (Groundwater recharge)
- REC-1 (Water contact recreation)
- REC-2 (Non-contact water recreation)
- WARM (Warm freshwater habitat)
- WILD (Wildlife habitat)
- RARE (Rare, Threatened, or Endangered Species)

The Project could result in short-term construction impacts to surface water quality from grading and other construction-related activities (e.g., erosion, spills, and leaks from construction equipment). Compliance with RR HYD-1 regarding the implementation of non-stormwater management and pollution-control BMPs, as outlined in the SWPPP for the Project, would reduce pollutants in the runoff. Compliance with the State Water Resources Control Board's (SWRCB's) Order No. 2003-0017-DWQ (RR HYD-2) regarding discharges from the Project would further reduce pollutants from being discharged into the downstream portion of the creek. Impacts on water quality would be less than significant with compliance with RR HYD-1 and RR HYD-2.

Operation of the Project would not violate any water quality standards or waste discharge requirements, as it would not generate any new land use or introduce any new sources of wastewater discharge or effluent that could adversely impact wastewater. The Project would not generate wastewater that would require conveyance or treatment in on-site septic systems or at wastewater plants in the region. Portable toilets would be provided for employees at the construction areas, and these portable toilets would be regularly cleaned and their contents disposed of offsite by an outside company. Wastewater from these portable toilets would not exceed the treatment requirements of the RWQCB, and the Project would not need new or expanded treatment facilities. Therefore, impacts associated with wastewater discharge requirements would be less than significant and no mitigation is required.

b) Would the project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?

Less than Significant Impact. The Project site is underlain by the East Raymond Groundwater Basin, which is a subarea of the overall Raymond Basin. There are currently two domestic water purveyors that overlay this area with extraction facilities (wells): the City of Arcadia and the City of Sierra Madre. Both water purveyors are experiencing decreased water levels and water quality concerns in some wells. The City of Sierra Madre relies solely on the Raymond Basin for its water supply, since it does not have any alternative water delivery infrastructure in place to meet its needs.

The Project activities would require the use of municipal water supplies during construction activities; however, the amount of water to be used for dust control would be limited. Implementation of the Project would help improve recharge of the local groundwater basin. Remediating the seismic deficiencies at the Debris Dam would result in DSOD removing the operational restrictions on the facility, thus restoring 119 acre-feet of water conservation capacity.

The Debris Dam would also be enlarged by raising the existing spillway by 4 feet, which would create 40 acre-feet of additional storage for a total of 159 acre-feet. As captured stormwater is released to the spreading grounds for groundwater recharge, the Debris Dam could then capture more runoff from upstream flows, thereby using the capacity multiple times depending on the frequency, duration, and intensity of storm events. The resulting additional water conservation is needed to recharge the Raymond Basin. Therefore, the Project would have negligible demands for groundwater supplies as a result of Project implementation, and impacts would be less than significant.

c) Would the project 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 that would result in substantial erosion or siltation onsite or offsite?

d) Would the project 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 that would result in flooding onsite or offsite?

Less than Significant Impact. Stormwater runoff from the Project site currently drains to the existing flood-control facilities in the Santa Anita Wash. Implementation of the Project would not result in the redirection of flows or alteration of drainage patterns when compared to the existing condition. Waters released from the Dam would continue to travel through Santa Anita Wash, through the improved Headworks and into the Debris Dam. During construction, the Dam, Headworks, and Debris Dam would be dewatered and flows would be temporarily diverted via small cofferdams and plastic bypass pipelines (sized to accommodate a certain flow dependent on the time of year), which would carry water around the work so that it can proceed downstream.

With regard to erosion or siltation, the long-term operation of the Project would not result in exposed soils that could be eroded or generate additional siltation within the watershed. As discussed under Thresholds 4.9(a) and 4.9(f), construction activities would be subject to compliance with RR HYD-1 and RR HYD-2 to minimize sediment releases into downstream areas. With regard to an increased rate or amount of surface runoff that could result in flooding, the Project would not develop any new impervious surfaces that could alter the amount of on-site stormwater infiltration. Additionally, the Project would improve the system's overall ability to capture sediment-laden stormwater runoff and stormwater flows, thereby resulting in a beneficial impact. Impacts would be less than significant and no mitigation is required.

e) Would the project create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of pollutant runoff?

No Impact. Implementation of the Project would increase opportunities to capture and infiltrate storm flows emanating from the Santa Anita Canyon Watershed into the groundwater basin. Remediating the seismic deficiencies at the Debris Dam would result in the DSOD removing the operational restrictions on the facility, thereby restoring 119 acre-feet of water conservation capacity. The Debris Dam would also be enlarged by raising the existing spillway by 4 feet, which would create 40 acre-feet of additional storage for a total of 159 acre-feet. When captured stormwater is released to the spreading grounds for groundwater recharge, the Debris Dam can then capture more runoff, which would allow for water storage capacity multiple times depending on the frequency, duration, and intensity of storm events. In doing so, less water would need to be sent to the downstream stormwater drainage infrastructure. Therefore, the Project would have no impact on the capacity of the existing downstream stormwater drainage system.

g) Would the project place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

h) Would the project place within a 100-year flood hazard area structures which would impede or redirect flood flows?

No Impact. The Project would not involve the construction of any housing or other temporary or permanent habitable structures. The Project would not create new impervious surfaces that could increase the rate or amount of stormwater runoff. The Project involves the reconstruction of existing flood-control facilities that are located within the Wash; however, these structures would not alter the current drainage patterns or impede/redirect flows when compared to the existing condition. The Project would reduce flood hazards to persons and structures downstream of the Dam by reclaiming the original capacity of the Debris Basin and bringing the Debris Dam up to current seismic standards. The flood-control facilities would be fully functional during the rainy season and there would be no hazards associated with the Dam's, Headworks', or Debris Dam's ability to retain storm flows.

i) Would the project 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?

No Impact. The Project would reclaim the original capacity of the Debris Dam to accommodate future inflows and to reduce the potential for exposure of downstream populations to risks from flooding due to reduced holding capacity and water overtopping the Dam. The Dam inundation area encompasses most of the City of Arcadia to the south. While the Dam has not been subject to failure in the past, the proposed spillway improvements, in conjunction with the Santa Anita Dam Riser Modification and Sediment Removal project (which was recently completed in 2012), would bring these facilities up to current DSOD and County design standards at the existing restricted elevation. Therefore, no impacts related to Dam failure would occur.

j) Would the project cause inundation by seiche, tsunami, or mudflow?

No Impact. Due to the distance of the Project site to the Pacific Ocean (approximately 30 miles west of the Project site) and the numerous structures between the Project site and the ocean, there is virtually no risk of on-site hazard due to tsunamis (seismically induced waves).

The Santa Anita Reservoir has the potential to experience a seiche (sloshing of a closed body of water from earthquake shaking); however, implementation of the Project would not change or eliminate the existing seiche hazard or compromise the Dam's or the Debris Dam's ability to hold water as designed. During the construction period, which would occur during the dry season, any water would be drawn down from the Reservoir and from the Debris Dam basin, eliminating the potential for seiche during construction. Mudflows could occur during construction of the Project due to the topography the surrounding the Project site. However, the Project would reduce the risk of seiche and mudflows to persons and structures downstream of the Dam by reclaiming the original capacity of the Debris Basin and bringing the Debris Dam up to current seismic standards. Therefore, no adverse impacts related to tsunami, seiche, or mudflow would occur.

4.9.3 MITIGATION MEASURES

There would be no significant impacts related to hydrology or water quality; therefore, no mitigation measures are required.

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

4.10.1 EXISTING CONDITIONS

The flood-control facilities in Santa Anita Canyon are existing public facilities operated and maintained by the LACFCD. The Dam is located within the Angeles National Forest and is zoned as "Back Country Motorized Use Restricted" by the USFS Land Management Plan (USFS 2005b). As shown in Exhibit 2-2, the actual Dam and the facilities immediately adjacent to the Dam (including the existing Dam Operator's house and storage shed) are on land owned by the USFS, whereas the area immediately to the west (including most of the access road, upper and lower water tanks) are located in an inholding area. The Forest Plan for the Angeles National Forest includes the vision, strategy, and design criteria for USFS' management activities and practices to ensure the protection of forest resources. The portions of the Project located within the City of Arcadia, including the Headworks and the Debris Dam, are designated by the *Arcadia General Plan* as Public Facilities and Grounds (P) (Arcadia 2010b). Current zoning for the site is Residential Mountainous (R-M), as defined by the City of Arcadia Zoning Code (Arcadia 2010a).

The eastern edge of the Debris Dam that is located in the City of Monrovia is designated Hillside Wilderness Area in the General Plan and zoned as Hillside Wilderness Preserve (Monrovia 2012a). No construction activities would occur within the City of Monrovia. However, temporary access/impact areas would be located within the City of Monrovia, including areas that may be subject to traversing vehicles or other mobile equipment, staging of equipment, placing stockpiles of soil, and excavating soil from the adjacent Sediment Placement Site for use in the buttressing backfill for the Debris Dam. No vegetation or tree removal would occur within the City of Monrovia. All of these activities would be limited to the LACFCD fee-owned right-of-way.

4.10.2 IMPACT ANALYSIS

Regulatory Requirements

RR USE-1 Prior to commencement of any construction activities at the Dam, the LACFCD must obtain approval from the U.S. Forest Service (USFS) in accordance with Provision 3 of the existing Special Use Permit (SUP) for additional construction at the Dam, which is subject to review in compliance with the National Environmental Policy Act (NEPA).

Impact Discussion

a) Would the project physically divide an established community?

No Impact. The Project does not involve the displacement of existing land uses or the construction of barriers across the Project area. Project construction activities would occur within portions of the Angeles National Forest and the City of Arcadia. There are no residential uses or established communities on the Project site. There would be no impact related to dividing an established community.

b) Would the project 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?

Less than Significant Impact. The Project would not change existing land uses at the Project site. The proposed improvements to the existing flood-control facilities in the Santa Anita Wash do not conflict with the land use and zoning designations in the City of Arcadia (Public Facilities and Grounds) General Plan and Zoning Code. The proposed improvements at Dam also would not conflict with the "Back Country, Motorized" zone of the USFS Land Management Plan.

In the USFS Forest Plan, "Back Country, Motorized" zones include areas that are generally undeveloped with few roads. These have remote recreational and administrative facilities. This zone is managed for motorized public access on designated roads and trails, with some roads closed to public access. Back Country roads provide access to scattered recreational opportunities in remote areas, such as camping and access to trailhead facilities for hiking or biking. The purpose of the Back Country Zone is to retain the natural character of the Angeles National Forest by limiting the level and type of development in these areas. The Project activities would occur on existing developed facilities and would not affect recreational areas, roads, or the natural character in areas designated as "Back Country, Motorized".

The Project activities would also not conflict with the strategic goals in the Forest Plan, as they relate to community protection, forest health, invasive species, outdoor recreation, energy resources, watershed conditions, and the mission of the U.S. Department of Agriculture. The Project would support the watershed functions of the Angeles National Forest, which is a beneficial impact. Therefore, the Project would not conflict with applicable land use plans, policies, or regulations.

An SUP was issued for the Dam in 1955, which remains active today. Provision 3 in the SUP indicates that written approval is required for additional construction (USFS 1955). RR USE-1 requires that prior to commencement of any construction activities at the Dam, the LACFCD shall obtain approval from the USFS in accordance with Provision 3 of the existing SUP for additional construction at the Dam. With compliance with RR USE-1, the components of the Project under USFS jurisdiction would comply with applicable USFS land use plans, policies, or regulations and impacts would be less than significant.

c) Would the project conflict with any applicable habitat conservation plan or natural community conservation plan?

No Impact. There is no habitat conservation plan or natural community conservation plan for the Project area. Also, the Project site is not located within a designated Significant Ecological Area (SEA) under the County's SEA program. Updates to LA County's SEAs have been drafted and are currently under review. The updated SEA boundaries include the study area within the San

Gabriel Canyon SEA (LACDRP 2011). However, the new boundaries will not be effective until the SEA boundaries are finalized; until then, the existing SEA boundaries will be in effect. Impacts on biological resources are discussed in Section 4.4 above. Therefore, no impacts related to habitat conservation plans or natural community conservation plans would occur.

4.10.3 MITIGATION MEASURES

There would be no significant impacts related to land use and planning; therefore, no mitigation measures are required.

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

4.11.1 EXISTING CONDITIONS

Mineral resources are naturally occurring chemicals, elements, or compounds formed by inorganic processes or organic substances. These resources include bituminous rock, gold, sand, gravel, clay, crushed stone, limestone, diatomite, salt, borate, potash, geothermal, petroleum, and natural gas resources. Construction aggregate refers to sand and gravel (natural aggregates) and crushed stone (rock) that are used as Portland-cement-concrete aggregate, asphaltic-concrete aggregate, road base, railroad ballast, riprap, fill, and the production of other construction materials.

The CGS has identified deposits of regionally significant aggregate resources in the State. These clusters or belts of mineral deposits are designated as Mineral Resources Zone 2 (MRZ-2), which are areas that require special management due to the presence of mineral resources important to the State (DOC 1987). The Project site is located within a MRZ-2 zone; however, there are no active mining activities. The only area in the City available for mining activity is the Livingston-Graham sand and gravel extraction site, which is located approximately 4.5 miles south of the Project site (Arcadia 2010b).

Review of maps prepared by the California Department of Conservation, Division of Oil, Gas, and Geothermal Resources shows that there are no gas, geothermal fields, or active wells in or near the Project site (DOGGR 2010). Additionally, there are no ongoing mining or extraction activities at or near Santa Anita Canyon.

4.11.2 IMPACT ANALYSIS

Regulatory Requirements

None required.

Impact Discussion

a) Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

b) Would the project result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?

No Impact. As previously stated, the Project site is located within an MRZ-2 Mineral Resources Zone. The CGS, under the Department of Conservation, has designated the Project site as an area containing significant mineral resources. However, as stated in the *Arcadia General Plan,* the various facilities managed by the LACFCD are required for flood-control purposes and are not available for mineral extraction (Arcadia 2010b).

The presence and ongoing operation of the Dam since 1927 precludes the use of the area for commercial aggregate resource production. The Project would not require mineral resources, nor would it change the availability of resources on or near the Project site. However, the presence of the LACFCD's flood-control facilities do not necessarily preclude future mining activity, if desired by the LACFCD and USFS. Additionally, no new structures or facilities would be constructed that could restrict future mineral resource recovery activities. Thus, impacts to mineral resources would not occur.

4.11.3 MITIGATION MEASURES

There would be no significant impacts related to mineral resources; therefore, no mitigation measures are required.

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

Information in this section is derived from the *Noise Impact Analysis for the Santa Anita Stormwater Flood Management and Seismic Strengthening Project, County of Los Angeles, California* dated October 2014 and prepared by BonTerra Psomas. This report is provided in its entirety in Appendix D and includes discussions of noise and vibration basic concepts and terminology.

4.12.1 EXISTING CONDITIONS

Sensitive Receptors

There are no residential or other noise-sensitive or vibration-sensitive land uses in the vicinity of Dam, with the exception of the residence of the Dam Operator, located west of the Dam. This residence would be removed by implementation of the Project; therefore, there would be no sensitive receptors in the vicinity of the Dam that could be impacted by construction noise.

There are no residential receptors in the vicinity of the Headworks. The nearest residences are approximately 550 feet southwest of the Headworks at the north end of Highland Vista Drive. There is no line of sight from the Headworks to these residences because of steep cliffs adjacent to the west and southwest side of the Headworks. There is also substantial vegetative growth that would attenuate noise between the Headworks and these homes.

The residences at the north end of Highland Vista Drive are approximately 250 feet west of the Wilderness Park Culvert Crossing. The elevation of the homes is approximately 150 feet above the Culvert Crossing. The Wilderness Park is located east of the Wilderness Park Culvert

Crossing and parking lot; the closest open space use area is approximately 150 feet east of the east end of the Culvert Crossing.

There are single-family residences in the City of Arcadia adjacent to the west and south of the Debris Dam. The homes south of the Debris Dam are on Oaks Place. The homes west and northwest of the Debris Dam face Highland Oaks Drive. The residential structures closest to the Debris Dam are approximately 40 to 200 feet from the base (toe) of the downstream embankment. The homes near the Debris Dam are shown in Exhibit 4-8, Noise Monitoring Locations. The nearest sensitive receptors to the Debris Dam in the City of Monrovia are approximately ½ mile east of the Debris Dam.

Existing Noise Levels

The Project vicinity is a relatively quiet, suburban area. Existing noise sources include vehicles coming to and from the local residences and Arcadia Wilderness Park; maintenance and inspection activities at the Project facilities; and typical residential neighborhood sounds such as landscape maintenance machinery, barking dogs, and trash collection.

Ambient noise level measurements were taken on December 20, 2012, using a Larson Davis Laboratories Model 831 integrating sound level meter (LD 831). The LD 831 sound level meter and microphone was mounted on a tripod four to five feet above the ground and equipped with a windscreen during all measurements. The LD 831 was calibrated before and after use. Two short-term noise level measurements were collected at the Debris Dam. Monitoring was conducted at the Debris Dam because this work site has the closest sensitive receptors and therefore would provide the most conservative noise impact analysis.

The monitoring locations were approximately 55 to 70 feet from the closest residences. Each short-term measurement was taken for a period of approximately 20 minutes to provide representative average daytime noise levels. These ambient noise measurement locations are shown in Exhibit 4-8, Noise Monitoring Locations, and the average, maximum, and minimum (L_{eq}, L_{max}, and L_{min}) values taken at each short-term ambient noise measurement location are summarized in Table 4-15, Summary of Short-Term Ambient Noise Level Measurements. The complete noise monitoring results are included in Appendix D.

TABLE 4-15
SUMMARY OF SHORT-TERM AMBIENT NOISE LEVEL MEASUREMENTS

Location No.	Location	Start Time, Duration	Noise Levels (dBA)			Primary Noise Source	Notes
			L_{eq}	L_{max}	L_{min}		
1	Debris Dam, south of the Dam's east end, on Lower Clam Shell Truck Rd.	12:57 PM 20 min	48	61	40	Vehicles on service road, residences.	Construction nearby but not close; barking dog.
2	Debris Dam, south of the Dam's west end, on Lower Clam Shell Truck Rd.	1:24 PM, 20 min	44	59	34	Vehicles on service road, residences.	Construction nearby but not close.

dBA: A-weighted decibel; L_{eq}: average noise level over a period of minutes or hours expressed as the equivalent noise level for that time period; L_{max} and L_{min}: the highest and lowest (respectively) A-weighted sound level that occurs during that noise event; min: minutes.

Source: BonTerra Psomas 2014c (Appendix D).

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Noise Monitoring Locations

Exhibit 4-8

Santa Anita Stormwater Flood Management and Seismic Strengthening Project

N W E S

200 100 0 200 Feet

BonTerra PSOMAS

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As shown in Table 4-15, the average daytime noise levels in the Project area when there is no construction work at the Debris Dam ranged from an average noise level (L_{eq}) between 44 and 48 A-weighted decibels (dBA). The existing background noise environment (i.e., ambient noise) in the Project area is primarily influenced by occasional vehicle traffic on the roads adjacent to the Project site.

Regulatory Setting

Public agencies have established noise guidelines and standards to protect citizens from potential hearing damage and other various adverse physiological and social effects associated with noise. The Dam is located within the jurisdiction of the U.S. Forest Service in the Angeles National Forest. The Headworks, the Wilderness Park Culvert Crossing, the Arcadia Wilderness Park, and the Debris Dam are located in the City of Arcadia. The noise- and vibration-sensitive receptors in the vicinity of the Wilderness Park and the Debris Dam are located in the City of Arcadia. The City of Arcadia has not adopted quantitative noise standards for construction activity. Therefore, in order to quantitatively assess construction noise impacts, the County of Los Angeles noise standards have voluntarily been used in this analysis even though such activities are exempted from the ordinance. Since there are no sensitive receptors in the City of Monrovia adjacent to the Project site (only open space), the analysis using the County's noise standards would be appropriate.

County Noise and Vibration Standards

Section 12.08 of the County of Los Angeles Code (County Code) contains the County Noise Ordinance. The County Noise Ordinance prohibits unnecessary, excessive, and annoying sounds from sources on private properties by setting limits that cannot be exceeded at adjacent properties. Section 12.08.440 of the County Code prohibits construction noise between the hours of 7:00 PM and 7:00 AM on weekdays (including Saturday), and at any time on Sunday or a federal holiday if it creates a disturbance across a residential or commercial real-property line. The County also sets maximum construction noise levels "at residential structures". As shown in Table 4-16 below, the daytime noise level limit at single-family residences for mobile construction equipment is 75 dBA.

TABLE 4-16
COUNTY OF LOS ANGELES CONSTRUCTION EQUIPMENT NOISE LIMITS

Time Interval	Single-Family Residential (dBA)	Multi-Family Residential (dBA)	Semi-Residential or Commercial (dBA)
Mobile Equipment			
Daily, except Sundays and legal holidays, 7:00 AM to 8:00 PM	75	80	85
Daily, 8:00 PM to 7:00 AM, and all day Sunday and legal holidays	60	64	70
Stationary Equipment			
Daily, except Sundays and legal holidays, 7:00 AM to 8:00 PM	60	65	70
Daily, 8:00 PM to 7:00 AM, and all day Sunday and legal holidays	50	55	60
dBA: A-weighted decibels Source: BonTerra Psomas 2014c (Appendix D).			

The County's Noise Ordinance requirements are not applicable to mobile noise sources such as automobiles or heavy trucks when traveling in a legal manner on public roadways or on private property. Mobile noise source control is preempted by federal and State laws.

Section 12.08.560 of the County Code states, "Operating or permitting the operation of any device that creates vibration which is above the vibration perception threshold of any individual at or beyond the property boundary of the source if on private property, or at 150 feet (46 meters) from the source if on a public space or public right-of-way is prohibited. The perception threshold shall be a motion velocity of 0.01 in/sec over the range of 1 to 100 Hertz."

City of Arcadia Noise and Vibration Standards

Construction noise is addressed in the Arcadia Municipal Code, Article IV, Chapter 2, Part 6, Nighttime Construction, Sections 4261 and 4262:

> 4261. PROHIBITED HOURS DEFINED.
>
> The term "prohibited hours" as used in this Part shall mean any time after the hour of 7:00 p.m. of any day; any time before the hour of 7:00 a.m. of any day; any time on any Sunday; and any time on any of the following holidays: January 1 (New Year's Day); May 30 (Memorial Day); July 4; Labor Day; November 11 (Veteran's Day); Thanksgiving Day; and December 25 (Christmas Day); provided that if in any calendar year any such holiday falls on a Sunday, the following Monday shall constitute the holiday.
>
> 4262. CONSTRUCTION LIMITED.
>
> Unless a permit so to do shall first have been obtained as provided in Section 4263, no person shall during prohibited hours engage in any earth excavation, land fill or earth moving operation or in the construction of any portion of a building or structure, nor shall any person during prohibited hours use or operate any truck, tractor, crane, rig or any mechanical equipment of any kind in connection with, in the performance of or in furtherance of any of the foregoing.

There are no City of Arcadia vibration standards applicable to the Project.

Structural Vibration Damage

There are no applicable County or City standards for structural damage from vibration. However, the California Department of Transportation (Caltrans) vibration damage thresholds are shown in Table 4-17, Guidelines Vibration Damage Potential Threshold Criteria.

TABLE 4-17
GUIDELINE VIBRATION DAMAGE POTENTIAL THRESHOLD CRITERIA

Structure and Condition	Maximum ppv (in/sec)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5

ppv: peak particle velocity; in/sec: inch(es) per second

Note: Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

Source: BonTerra Psomas 2014c (Appendix D).

4.12.2 IMPACT ANALYSIS

Regulatory Requirements

RR NOI-1 In compliance with the County Code and consistent with the City of Arcadia Municipal Code, Project construction activities at the Dam, Headworks, Wilderness Park Culvert Crossing, and Debris Dam that generate substantial noise, such as the operation of construction equipment and mechanical equipment, shall be limited to the hours of 7:00 AM to 7:00 PM Monday through Saturday.

Impact Discussion

a) Would the project result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

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

Less than Significant Impact with Mitigation. Temporary noise impacts associated with the Project would be limited to the construction phases. Typically, the primary noise sources during construction of a project are generated by the diesel engines of construction equipment and the impact noise from operations such as pile driving, blasting, and jackhammering. No pile driving or blasting activities are anticipated for the Project; jackhammering may be used for some demolition work.

Construction noise is related primarily to the use of heavy equipment. Construction equipment can be considered to operate in two modes: stationary and mobile. Stationary equipment operates in one location for one or more days at a time, with either a fixed-power operation (such as pumps, generators and compressors) or a variable noise operation (such as rock drills and pavement breakers). Mobile equipment moves around the construction site with power applied in cyclic fashion, such as bulldozers, graders, and loaders. Noise impacts from stationary equipment are assessed from the location of the specific equipment, while noise impacts from mobile construction equipment are assessed from the center of the equipment activity or construction site. The noise level at a receptor is dependent on the distance from the source to the receptor and the intervening topography and ground cover.

Variation in power is also a factor in characterizing the noise source levels from construction equipment. Power variation is accounted for by describing the noise at a reference distance from equipment operating at full power and adjusting it based on the duty cycle of the activity to determine the L_{eq} of the operation.[10] Typical duty cycles and noise levels generated by representative pieces of equipment are listed in Table 4-18, Typical Maximum Construction Equipment Noise Levels.

TABLE 4-18
TYPICAL MAXIMUM CONSTRUCTION EQUIPMENT NOISE LEVELS

Equipment	Noise Level (dBA) at 50 ft	Typical Duty Cycle
Auger Drill Rig	85	20%
Backhoe	80	40%
Blasting	94	1%
Chain Saw	85	20%
Clam Shovel	93	20%
Compactor (ground)	80	20%
Compressor (air)	80	40%
Concrete Mixer Truck	85	40%
Concrete Pump	82	20%
Concrete Saw	90	20%
Crane (mobile or stationary)	85	20%
Dozer	85	40%
Dump Truck	84	40%
Excavator	85	40%
Front End Loader	80	40%
Generator (25 KVA or less)	70	50%
Generator (more than 25 KVA)	82	50%
Grader	85	40%
Hydra Break Ram	90	10%
In situ Soil Sampling Rig	84	20%
Jackhammer	85	20%
Mounted Impact Hammer (hoe ram)	90	20%
Paver	85	50%

[10] The duty cycle is the percentage of time that the equipment is typically at full power.

TABLE 4-18
TYPICAL MAXIMUM CONSTRUCTION EQUIPMENT NOISE LEVELS

Equipment	Noise Level (dBA) at 50 ft	Typical Duty Cycle
Pile Driver, Impact (diesel or pneumatic)	95	20%
Pile Driver, Vibratory	101	20%
Pneumatic Tools	85	50%
Pumps	77	50%
Rock Drill	85	20%
Scraper	85	40%
Tractor	84	40%
Vacuum Excavator (vac-truck)	85	40%
Vibratory Concrete Mixer	80	20%
dBA: A-weighted decibels; ft: feet; KVA: kilovolt amps Source: BonTerra Psomas 2014c (Appendix D).		

Construction Phasing

Each phase of construction has a specific equipment mix, depending on the work to be accomplished during that phase. Each phase also has its own noise characteristics; some would have higher continuous noise levels than others, and some have high-impact noise levels. The L_{eq} of each phase is determined by combining the L_{eq} contributions from each piece of equipment used in that phase. As shown in Table 3-1, construction of the Project at the Dam is anticipated to commence in December of 2015.

Temporary Construction Noise

Typical heavy construction equipment would include bulldozers, excavators, dump trucks, front-end loaders, graders, and industrial/concrete saws. Construction of the Project would include demolition, which may result in impact noise. As previously mentioned, construction activities associated with the Project would not include blasting or pile driving.

Because of the effects of noise attenuation, the distance from the noise source to a receptor is a primary consideration in determining the noise level experienced at the receptor. The distances and locations of potential sensitive receptors near the Project site were discussed above and sensitive receptors near the Debris Dam are shown in Exhibit 4-8. Because different construction stages involve different pieces of equipment and may involve only localized portions of a site, each construction stage can result in different noise levels being generated depending on the distance to sensitive receptors. As described in RR NOI-1, all construction activity must be limited to the hours of 7:00 AM to 7:00 PM Monday through Saturday. However, in order to reduce construction-related impacts to nearby residences, the Project would only be under construction during the weekdays (Monday through Friday) and work would not occur on Saturdays.

<u>Dam</u>

Construction at the Dam would occur for approximately 10 months (starting in December 2015). There are no noise-sensitive receptors near the Dam or near the slope improvement area north of the Dam. Although construction activity would result in substantial temporary noise increases in the area near the Dam, there would be no impacts because there are no nearby sensitive receptors.

Headworks

Construction at the Headworks would occur for approximately one month (starting in March 2016). Construction noise would result in substantial temporary noise increases in the area around the Headworks. Although the nearest homes are more than 500 feet from the Headworks and there are topographic and vegetation barriers that would attenuate noise between the Headworks and the homes, some construction noise would be audible. Neither the magnitude nor the duration of the construction noise would be substantial and the impact would be less than significant.

Wilderness Park Culvert Crossing

Construction at the Wilderness Park Culvert Crossing would occur for approximately 4.5 months (starting in April 2016) after construction at the Headworks. Construction noise would result in substantial temporary noise increases in the area immediately adjacent to the Wilderness Park Culvert Crossing. The noisiest piece of equipment used at this site would be a concrete saw, which would be used intermittently in the demolition of the existing concrete slab and Culvert Crossing. As shown in Table 4-18, the maximum noise level for a concrete saw is 90 dBA at a distance of 50 feet. Another noise source would be the diesel engines of a bulldozer, excavator, truck, or backhoe. Two of the noisiest pieces of diesel engine driven equipment each generates noise levels of 85 dBA L_{max}. If operated at full power simultaneously, the combined maximum noise level would be 88 dBA at 50 feet. A concrete saw and a diesel engine at maximum noise levels together would be 91 dBA at 50 feet.

The nearest homes are approximately 250 feet from the Wilderness Park Culvert Crossing. At a distance of 250 feet and without absorbent vegetation or barriers blocking the line of sight, a noise level of 91 dBA at 50 feet would be reduced to 77 dBA. The topography between the homes and the Culvert Crossing (i.e., the bluff edges) would act as a barrier, blocking the line of sight; the topography would, therefore, act as a barrier along the noise transmission path between most or all of the construction activities and the homes, reducing noise by 3 to 5 dBA. Maximum noise levels, assuming they occur intermittently at the homes, are estimated at 72 to 74 dBA, and may be substantially less depending on the noise attenuation provided by the intervening topography. However, some construction noise would be audible and may occasionally be disturbing to persons in the backyards of the homes. The maximum noise levels would be less than the County Noise Ordinance 75 dBA limit for construction noise from mobile equipment to single-family residential land uses. Therefore, the impact would be less than significant and no mitigation is required.

However, in order to minimize noise impacts to residences in the vicinity of the Wilderness Park Culvert Crossing, MM NOI-1 would be implemented, which specifies construction practices to minimize noise effects upon sensitive receptors. The Project would also implement MM NOI-2, which would provide a process for identifying and correcting excessive construction noise levels. Neither MM NOI-1 nor MM NOI-2 is required to ensure that impacts at the Wilderness Park Culvert Crossing would be less than significant.

The County Noise Ordinance construction equipment noise limits are not applicable to the Wilderness Park because it is neither a residential nor commercial land use. However, it is noted that short-term construction noise levels at the Culvert Crossing may be annoying for some visitors. Construction noise is generally understood to be a temporary inconvenience, especially for people that are not obligated to stay near the noise source and can freely move to a quieter location. Therefore, there would be no impacts to park users from construction noise associated with the Culvert Crossing.

Debris Dam

Construction at the Debris Dam would occur for approximately six months (starting April of 2016). Construction noise would result in substantial temporary noise increases in the residential area immediately adjacent to the Debris Dam. The homes west and south of the Debris Basin are approximately 40 to 200 feet from the base of the downstream Debris Dam embankment, relatively close to the proposed structural buttressing that would occur at the toe of the downstream embankment. Excavation for the structural buttress at the toe of the Debris Dam would occur at distances 25 to 50 feet from the closest residences. When construction work would occur on the upstream side of the embankment, the embankment would act as a noise barrier to the residences on the downstream side, reducing the noise level at those receptors. Similarly, the Debris Dam would be a barrier between upstream receptors and noise generated on the downstream side. As previously discussed, there are no sensitive noise receptors near the Project site in the City of Monrovia. Thus, the focus of the noise analysis at the Debris Dam is potential impacts to receptors near the downstream embankment.

As previously discussed in Section 4.3, Air Quality, construction activities at the Debris Dam are expected to include one excavator, one dozer, one backhoe, one loader, as well as on-road trucks. As shown in Table 4-18, some of this equipment has a maximum noise level of 85 dBA at 50 feet. Two of the noisiest pieces of equipment, if at full power simultaneously, would have a maximum noise level of 88 dBA at 50 feet. If large diesel engine powered construction equipment would operate on or below the downstream embankment, the resulting noise level of 88 dBA at 50 feet would exceed the County Noise Ordinance 75 dBA limit at residences closer than 225 feet, and mitigation is required.

MM NOI-3 would be implemented, which requires (1) the installation of a temporary 16-foot-high noise barrier between the Debris Dam and the residences closest to the downstream side of the Debris Dam to ensure a minimum noise transmission loss of 22 dBA and (2) that only 1 piece of equipment be operated at full power at any time for work that is done on the downstream side of the Debris Dam within 50 feet of residences. For example, when a loader is at full power loading a truck, the truck should be shut down or on low idle; when the truck powers up to move, the loader should be shut down or a low idle. As previously noted, work on the structural buttress may occur as close as 25 feet from a residence. At that distance and without a noise barrier, the noise level from a piece of construction equipment that generates 85 dBA at 50 feet would be 91 dBA. With those parameters, the noise barrier would provide a minimum of 18 dBA noise reduction, reducing the maximum noise level to 73 dBA or less.

The effectiveness of a noise barrier, called insertion loss, varies with the locations of the noise source and receptor relative to the barrier. Table 4-19, Noise Levels with Noise Barrier, shows noise levels without and with a 16-foot-high noise wall with various locations of the noise source.

TABLE 4-19
NOISE LEVELS WITH NOISE BARRIER

Source Noise Level at 50 ft (dBA)	Source to Receptor Distance (ft)	Receptor Noise Level w/o Wall (dBA)	Wall Height (ft)	Insertion Loss (dBA)	Receptor Noise Level with Wall (dBA)
85	25	91	16	18	73
85	50	85	16	16	69
85	75	81.5	16	16	65.5

dBA: A-weighted decibels; ft: feet

Note: Data for source and receptor at the same elevation. The source (construction equipment) may be at a higher elevation when working on the downstream side of the Debris Dam. In this case the effective wall height and insertion loss would be reduced, but noise levels at the receptor would not exceed 75 dBA.

Source: BonTerra Psomas 2014c (Appendix D).

As shown in Table 4-19, with 1 piece of equipment with a noise level of 85 dBA at 50 feet distance from residences, the receptor noise level would be 73 dBA at a 25-foot distance between the source and receptor. A second piece of equipment with the same noise level would increase the receptor noise by 3 dBA, which would exceed the 75 dBA threshold. Therefore, MM NOI-3 limits the number of equipment at full power within 50 feet of residences. The proposed location of the noise barrier is shown on Exhibit 4-8. With implementation of MM NOI-3, construction equipment noise levels would not exceed 75 dBA at the adjacent residences and impacts would be reduced to levels less than significant.

In order to further minimize noise impacts to residences in the vicinity of the Debris Dam, MM NOI-1 would be implemented, which specifies construction practices to minimize noise effects upon sensitive receptors. The Project would also implement MM NOI-2, which would provide a process for identifying and correcting excessive construction noise levels. Neither MM NOI-1 nor MM NOI-2 is required to ensure that impacts at the Debris Dam would be less than significant.

On-Road Construction Traffic

The Project would generate traffic on N. Santa Anita Avenue, Highland Oaks Drive, and Elkins Avenue. During the approximate 10-month construction period, the traffic noise impacts would be related to movement of construction equipment, trucks, and construction worker trips. Once construction equipment is transported to the various flood-control facilities, it is anticipated that the equipment would remain on site until the end of each phase and all Project-related traffic noise would be related to workers entering and leaving the Project site during the workdays. The anticipated number of worker trips are detailed in Table 3-2. Individual truck passbys would be heard at residences adjacent to the roads used; the noise would be similar to the occasional noise of waste collection trucks, which would be approximately 73 to 77 dBA at a distance of 50 feet from the centerline of the road, depending on the speed of the truck.

Peak trucking periods, including concrete trucks and dump trucks for hauling fill material, would occur at two distinct construction phases: (1) a two-week period in December 2015, when construction at the Dam (reinforcement of the armoring on the downstream canyon wall and construction of the helipad) would occur; concrete pours and other material deliveries would require approximately 50 daily round trips (e.g. equates to approximately 6.3 round trips per hour per workday-assuming 8 hours of activity per day); and (2) over approximately 5 weeks starting in August 2016, when construction of the Debris Dam buttresses would require approximately

74 round trips for soil import per day (e.g. equates to approximately 9.2 round trips per hour per workday-assuming 8 hours of activity per day).[11] The anticipated schedule for construction activities are shown in Table 3-1 and the anticipated number of truck/worker trips during each period are shown in Table 3-2.

With the exception of noise generated during the two construction activities described above, the hourly average noise increase due to construction traffic would be less than 3 dBA. Because there is relatively little existing traffic noise on Highland Oaks Drive and Elkins Avenue, the hourly average noise level could increase up to 8 dBA during trucking to the Dam and Wilderness Park Culvert Crossing, and up to 12 dBA during trucking to the Debris Dam. During these periods of concrete truck activity, there would be a clearly audible increase in periodic noise events (i.e. the noise increase associated with each truck pass); however, these two periods of increased traffic noise would be short-term and would occur over a period of approximately 7 weeks. It is also noted that the community noise equivalent level (CNEL) would not exceed 60 dBA during these two peak traffic noise periods, which is the City's "Normally Acceptable" noise compatibility guideline for development in a low density residential area. This guideline is not applicable to the Project because traffic noise is short-term due to construction activities, whereas the guideline refers to long-term operational noise sources. However, it is mentioned to provide context and illustrate that even short-term construction activities would be within the City's "Normally Acceptable" noise compatibility guideline. The impact would be less than significant.

b) Would the project result in exposure of persons to or generate excessive groundborne vibration or groundborne noise levels?

Less than Significant with Mitigation. The Project has the potential to generate vibration at the nearest homes, located adjacent to the west and south of the Debris Dam.

Construction

Groundborne vibration generated by construction activities is usually highest during pile driving, blasting, soil compacting, jack-hammering, and demolition-related activities. No blasting or pile driving would be required; however, the Project would require demolition activities that may require jackhammers. Next to demolition, grading activity has the greatest potential for vibration impacts as the largest and heaviest equipment would be used during this stage.

Vibration levels are usually expressed as single-number measurements of vibration magnitude (in terms of velocity or acceleration), which describes the severity of the vibration. The peak particle velocity (ppv) is defined as the maximum instantaneous positive or negative peak of the vibration signal, usually measured in inches per second (in/sec).

Table 4-20, Vibration Levels During Construction, summarizes typical vibration levels measured during construction activities for various vibration-inducing pieces of equipment at a distance of 25 feet and the calculation of these levels at a distance of 50 feet. Excavation for the structural buttress at the toe of the Debris Dam would occur at distances 25 to 50 feet from the closest residences.

[11] Estimated soil import requirements of 65,000 cubic yards, delivered in 16 cubic yard trucks, would result in 4,063 truck trips over the course of 2.5 months, as shown in Tables 3.1-2 and 3.2-2. Because approximately half of the import fill material would be obtained from the adjacent SPS, the first 5 weeks of soil import would not require the dump trucks to travel through the adjacent neighborhoods. Once the full amount of soil is obtained from the SPS, import will be required for the remaining 32,500 cubic yards, which would occur over the remaining 5 week period.

TABLE 4-20
VIBRATION LEVELS DURING CONSTRUCTION

Equipment		PPV at 25 ft (in/sec)	PPV at 50 ft (in/sec)
Pile driver - impact	Upper range	1.518	0.617
	Typical	0.644	0.262
Large bulldozer		0.089	0.036
Caisson drilling		0.089	0.036
Loaded trucks		0.076	0.031
Jackhammer		0.035	0.014
Small bulldozer		0.003	0.001
ft: feet; in/sec: inches per second.			
Source: BonTerra Psomas 2014c (Appendix D).			

Although it is possible for vibration from construction projects to cause building damage, vibration from construction activities are almost never of sufficient amplitude to cause more than minor cosmetic damage to buildings. There are no off-site structures near the Dam or the Headworks. The closest residential structures to the Wilderness Park Culvert Crossing are 250 feet away. The closest residential structures to the Debris Dam work area are 25 feet away. The highest potential vibration level at a distance of 25 feet shown in Table 4-20 above (i.e., a large bulldozer at 0.089 ppv in/sec) would be substantially less than the 0.3 ppv in/sec structural damage guideline for older residential structures. Therefore, there would be no potential for structural damage to existing structures near the Project site.

Section 12.08.560 of the Los Angeles County Code considers the vibration perception threshold is a motion velocity of 0.01 in/sec. As shown in Table 4-20, if large equipment were to operate frequently within 25 feet of an occupied residence, vibration level would be approximately 0.09 in/sec and would be distinctly perceptible. At a distance of 140 feet, the vibration level from the largest equipment shown in Table 4-20, a heavy bulldozer, would not exceed 0.01 in/sec. In order to limit vibration at the residences to less than 0.01 in/sec, MM NOI-4 would be implemented. MM NOI-4 would prohibit the use of large bulldozers and large loaded trucks on the Project site within 140 feet of an occupied residential structure. Jackhammer vibration would not exceed 0.01 in/sec at distances greater than 60 feet. While jackhammers may be used for some demolition activities at the Debris Dam, no demolition is planned within 60 feet of an occupied residence. With the implementation of MM NOI-4, the impact would be less than significant.

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

No Impact. When Project construction is complete, there would be no long-term changes to the regular inspection and maintenance operations at the Dam, Headworks, or Debris Dam, nor would there be any associated noise generation. Noise impacts associated with the Project would be solely related to construction activities with the following exception. Helicopter flights to and from the new helipad at the Dam would occur only in emergencies and would not be anticipated to occur more than once or twice per year. These occasional noise events would not permanently affect the ambient noise levels. Therefore, there would be no Project-generated change in long-term ambient noise levels in the Project vicinity.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

No Impact. The Project would not develop land uses that would locate persons in an area subject to noise from public airports, nor would the Project generate aircraft noise. There is no public airport within two miles of the site. The closest airport to the Project site is the El Monte Airport, approximately five miles to south. There would be 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?

Less that Significant Impact. The Project would not develop land uses that would locate persons in an area subject to noise from private airports or airstrips. Noise generated by emergency helicopter flights is not anticipated to occur more than once or twice per year and would not be excessive. The impact would be less than significant.

4.12.3 MITIGATION MEASURES

MM NOI-1 Even though measures set forth in this mitigation are not required to reduce noise to less than significant levels at either the Culvert Crossing or the Debris Dam, these measures will be implemented at these construction sites to further reduce noise impacts.

- The construction contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers, consistent with manufacturers' standards.
- The construction contractors shall place all stationary construction equipment so that the equipment is as far as feasible from the noise-sensitive receptors and so that emitted noise is directed away from the noise-sensitive receptors.
- The construction contractors shall locate equipment staging in areas that will create the greatest distance between staging area noise sources and noise-sensitive receptors during all Project construction.
- The construction contractors shall limit haul truck deliveries to the same hours specified for operation of construction equipment.

MM NOI-2 Even though measures set forth in this mitigation are not required to reduce noise to less than significant levels at either the Culvert Crossing or the Debris Dam, these measures will be implemented at these construction sites to further reduce noise impacts.

At least two weeks before, but not more than one month prior to the start of noise-generating construction activities, notification shall be mailed to owners and occupants of all developed land uses within 300 feet of the Culvert Crossing and Debris Dam providing a schedule for major construction activities that will occur through the duration of the construction period. The notification shall include the identification and contact number for a designated construction manager that would be available on site to monitor construction activities. Contact information

for the Construction Manager shall also be located at the Arcadia City Hall and the Arcadia Police Department.

Complaints may be made during construction hours and a response shall be made within one work day. The Construction Manager shall document all complaints and resolutions and shall provide copies to the LACFCD within three working days of the complaint.

The Construction Manager, upon observation of excessive noise occurring near adjacent homes or upon receipt of a complaint about excessive noise shall do the following:

- Ensure that construction equipment is properly muffled according to industry standards, and
- Modify operations to reduce the number of pieces of equipment operating near noise sensitive receptors or operating concurrently, unless the modification would prevent completion of the task, or
- Implement corrective or additional noise-attenuation measures considered appropriate to address the complaint, which may include, but are not limited to, noise barriers or noise blankets.

MM NOI-3 Prior to the start of grading or similar heavy equipment operation on the downstream side of the Debris Dam, the County shall erect a temporary noise barrier between the structural buttressing work area and the residences to the southwest. The barrier shall be located along the southwest edge of the site access road, but the horizontal location may be adjusted as necessitated by geographical or topographical constraints or to avoid trees. The barrier shall be 16 feet high and solid from the ground to the top. The barrier shall be plywood of at least 0.75-inch thickness or other material with a noise transmission loss of 22 dBA or more.

When equipment is working on the downstream site of the Debris Dam within 50 feet of residences, only one piece of equipment shall be at full power at any time; other equipment shall be shut down or at low idle.

MM NOI-4 Large bulldozers and large loaded trucks shall not be operated on the Project site within 140 feet of an occupied residence. Consistent with the County Code, this restriction does not apply to trucks on a public right-of-way.

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

4.13.1 EXISTING CONDITIONS

The Project site does not include residential homes or land uses, with the exception of the Dam Operator who is a LACFCD employee who resides on site. All other staff travel to the various flood-control facilities to perform maintenance activities and leave when the work is completed. The Debris Dam is located immediately adjacent to a residential neighborhood in the City of Arcadia.

4.13.2 IMPACT ANALYSIS

Regulatory Requirements

None required.

Impact Discussion

a) Would the project induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through the extension of roads or other infrastructure)?

No Impact. The Project would not include the construction of any habitable structures or any new land uses that could induce population growth. The Project does not involve the extension of new infrastructure that could serve future populations. The Project would modify existing flood management and water conservation facilities along the Santa Anita Canyon Watershed, including the Santa Anita Dam, the Santa Anita Headworks, the Wilderness Park Culvert Crossing, and the Santa Anita Debris Dam. The LACFCD facility improvements would: (1) reduce flood risk to downstream communities; (2) enhance sustainability of the local water supply and increase recharge to the groundwater basin by over 500 acre-feet per year; (3) improve all-weather access to the Arcadia Wilderness Park by constructing a new culvert crossing. Obtaining these goals would have no direct or indirect impact on population growth.

The Project would bring in LACFCD staff, contractors, and other authorized personnel to the various flood-control facilities for the duration of the Project construction period (i.e., during the daytime hours between approximately April 2015 and October 2016, except for Sundays and holidays). However, these workers are not expected to generate a demand for housing, goods or services, nor would they change land uses in the area. The local population (i.e., in Los Angeles County) could provide adequate skilled workers to satisfy the construction-related positions, and

there would be no need to relocate workers from other areas. The national recession has negatively affected employment for construction workers throughout Southern California, and the unemployment rate in Los Angeles County during March 2013 was 9.9 percent (USBLS 2013). Although there are signs that the economy is recovering, there is no shortage of local labor to satisfy the worker demands of the Project. Thus, no indirect change in the population and housing of the County or in the immediately surrounding area is expected with the presence of construction crews on site.

b) Would the project displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?

c) Would the project displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

Less than Significant Impact. Project implementation would result in demolition of the existing Dam Operator's house, which would be replaced with a helipad to provide aerial access to the Dam in the event of emergencies. The loss of the house would result in displacement of the Dam Operator's household. However, replacement housing would be provided by the LACFCD in existing off-site housing; no new housing would be constructed. Therefore, impacts related to population and housing would be less than significant.

4.13.3 MITIGATION MEASURES

There would be no significant impacts related to population and housing; therefore, no mitigation measures are necessary.

4.14 PUBLIC SERVICES	Potentially Significant Impact	Less than Significant with Mitigation	Less than Significant Impact	No Impact
Would the project:				
a) Would the Project result in substantial adverse physical impacts associated with the provision of new or physically altered government facilities, need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
Fire protection?	☐	☐	☒	☐
Police protection?	☐	☐	☒	☐
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

4.14.1 EXISTING CONDITIONS

Fire protection for the Project area is currently provided by the City of Arcadia Fire Department and the U.S. Forest Service (USFS). The USFS provides law enforcement of federal laws (within the Angeles National Forest). The Arcadia Fire Station that would respond to calls in the area of the Project site is Station 107, which is located at 79 West Orange Grove Avenue. Police protection for the Project site is currently provided by the Arcadia Police Department, which is located at 250 West Huntington Drive. The LACFCD's flood-control facilities do not generate a demand for schools, parks, or libraries.

4.14.2 IMPACT ANALYSIS

Regulatory Requirements

None required.

Impact Discussion

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered government facilities, need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:

- **Fire protection?**
- **Police protection?**
- **Schools?**
- **Parks?**
- **Other public facilities?**

Fire Protection

Less than Significant Impact. The Project would not involve the construction of any new land uses, structures, or other improvement or operational activities that could increase demands for long-term fire protection services, nor would the Project indirectly affect population growth. The proposed improvements would not require the long-term use of flammable, combustible, or explosive materials. The Project includes construction of a helipad to provide aerial access to the Dam in the event of an emergency, including wildfires. The introduction of a helipad at this location would help improve emergency response to the Project site and surrounding area. Therefore, the Project would not generate increased demand for fire protection services, directly or indirectly, such that new or physically altered fire protection facilities would be required.

Although there are no significant impacts related to this issue, it is noted that the Project is located in a VHFHSZ-designated area. As discussed in Section 4.8 Hazards and Hazardous Materials, implementation of MM HAZ-2 would ensure reduction of wildfire risks and protect workers during Project construction activities. MM HAZ-2 requires that the LACFCD prepare a Fire Protection Plan that includes emergency reporting procedures; emergency notification, evacuation, and/or relocation of all persons on site; procedures for "hot work" operations; management of hazardous materials and removal of combustible debris; maintenance of emergency access roads; identification of exit routes and assembly areas; and identification of fire apparatus. Therefore impacts related to demand for fire protection services would be less than significant.

Sheriff Protection

Less than Significant Impact. As discussed above, the Project would not involve the construction or operation of structures or infrastructure improvements that could increase demands for long-term sheriff protection (i.e., law enforcement) services, including USFS services. Temporary Project-related activities, such as the presence of construction equipment on the Project site, may provide increased opportunities for theft. The construction areas would be fenced and the LACFCD's Contractor would be required to secure building materials and construction equipment to prevent theft and vandalism from occurring at the Project site during construction. Additionally, there would be no unusually valuable or out of the ordinary equipment or materials associated with Project implementation that would generate an unusual attraction for theft. Any increase in demand for sheriff protection services due to the Project would be less than significant, and there would be no new demands for sheriff protection services that could result in new or physically altered sheriff facilities.

Schools, Parks, and Other Public Facilities

No Impact. The Project would generate no demand for schools, parks, or other public facilities because the Project does not involve the development of new or expanded land uses or infrastructure improvements and would not generate any population growth. No impact on schools, parks, or other public facilities would occur.

4.14.3 MITIGATION MEASURES

There would be no significant adverse impacts related to public services; therefore no mitigation measures are required.

4.15 RECREATION	Potentially Significant Impact	Less than Significant with Mitigation	Less than Significant Impact	No Impact
Would/does the project:				
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?	☐	☐	☒	☐
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?	☐	☐	☒	☐

4.15.1 EXISTING CONDITIONS

The Dam does not provide any recreational facilities, although the surrounding area within the Angeles National Forest offers opportunities for various recreational activities. While the Dam and Reservoir are located within the Angeles National Forest, public access within these areas is prohibited. The access road to the Dam is gated to prevent trespassing and for public safety. Also, the steep slopes surrounding the reservoir and downstream canyon prevent easy access to the Dam and Reservoir.

The USFS Chantry Flats Recreation Area is located approximately one mile north of the Dam and is accessed via Santa Anita Canyon Road (which turns into Chantry Flats Road). This recreation area contains a large picnic area and trailheads for many popular hiking trails. The gate at Santa Anita Canyon Road, which leads to Chantry Flats Recreation Area, is open from 6:00 AM to 10:00 PM and U.S. Forest Adventure Pass is required for parking and day use in this area.

The majority of the Project site is located in the City of Arcadia. The Project includes replacement of the Culvert Crossing that provides sole public access to the Arcadia Wilderness Park and associated parking lot. Amenities at the Wilderness Park include a Nature Center, picnic areas, a multi-purpose field, nature trails, a barbeque, a fire circle, and restrooms. The Wilderness Park is open from 8:30 AM to 4:30 PM Monday through Friday from October through April and from 8:30 AM to 7:00 PM Monday through Friday from May through September. The Wilderness Park is used for various programs and classes throughout the year, including overnight Boy Scout campouts every Friday and Saturday and youth day camps every weekday between mid-June to late-August.

A Los Angeles County Trail, County Trail #7 – Santa Anita Wash Trail Extension, is located on the Project site (LACDPR 2001). This trail connects to County Trail #6 – Santa Anita Wash Trail, and provides access to the Angeles National Forest.

4.15.2 IMPACT ANALYSIS

Regulatory Requirements

None required.

Impact Discussion

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?

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?

Less than Significant Impact. As discussed above in Section 4.13, Population and Housing, Project activities would not induce population growth directly or indirectly that could generate a need for or increase use of neighborhood and regional parks, including nearby recreational trails. The Project consists of improvements to existing stormwater flood-control facilities and would not increase the use of existing park or recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated. The roads and trails of the Angeles National Forest would remain operational during construction activities and after the Project is complete.

As previously discussed, it is anticipated that adequate vehicular and pedestrian access could be provided to the Arcadia Wilderness Park throughout the majority of the construction period for the Culver Crossing, with only occasional closures required for periods of about a week or less at any given time during construction. Notification of any temporary closures would be posted at the entrance to the Wilderness Park. Those brief closures would avoid important events at the Wilderness Park, such as the overnight Boy Scout campouts every Friday and Saturday and youth day camps every weekday between mid-June to late-August. However, in order to provide a conservative analysis for impacts to Biological Resources (see Section 4.4 of this MND), the assembly of a temporary bypass crossing located north of the existing Culvert Crossing, which could require removal of a sycamore tree, has been assumed and assessed to account for the event that the temporary bypass crossing is used.

As such, construction activities would have a less than significant impact on access to this recreational amenity. If Wilderness Park users are bothered by construction noise near the parking areas associated with the Culvert Crossing replacement, or are inconvenienced by temporary access closures, there are existing recreational facilities with similar amenities located within an approximate five-mile radius that could be used by patrons of the Wilderness Park. Monrovia Canyon Park in the City of Monrovia is located approximately 2.0 miles to east of the Wilderness Park and has a Nature Center, picnic areas, and nature trails; the U.S. Forest Service Chantry Flat Recreation Area is located approximately 1.8 miles to the north and has a Ranger Station, Adams' Pack Station and General Store, picnic areas, restrooms, camping, and trailheads for hiking trails within the National Forest; and there are 4 additional parks in the City of Arcadia within approximately 1.0 mile of the Project site—Highland Oaks, Eisenhower Memorial, Newcastle, and Forest Avenue Parks—which provide both active and passive recreational facilities.

Once construction of the replacement Culvert Crossing is complete, the temporary crossing would be dismantled (if it was constructed) and access to the Wilderness Park would be reinstated over the new Culvert Crossing. There would be less than significant impacts related to park access and recreational facilities and no mitigation is required.

4.15.3 MITIGATION MEASURES

There would be no significant impacts related to recreation; therefore, no mitigation measures are required.

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

4.16.1 EXISTING CONDITIONS

Santa Anita Avenue is a north-south oriented two-lane divided local roadway in the Project vicinity. Santa Anita Avenue is designated an arterial roadway south of Foothill Boulevard and provides an interchange with Interstate (I) 210. The roadway has a landscaped median and the northbound leg of the roadway is generally 28 feet in width and the southbound leg is generally 24 feet in width. As it travels north towards the Angeles National Forest, it becomes Chantry Flats Road (Forest Route 2N40), providing access to the Dam and other recreational opportunities in the forest. It does not connect to any other thoroughfares that traverse the forest. Elkins Avenue is a two-lane residential roadway that connects the Project site east of Highland Oaks Drive with Santa Anita Avenue to the west. The curb-to-curb width of the roadway is 36 feet. Single-family homes are located along this roadway and on-street parking is provided. The speed limit is 25 miles per hour (mph). The Elkins Avenue intersection at Highland Oaks Drive is controlled by a stop sign on Highland Oaks Drive. Highland Oaks Drive is a two-lane residential roadway that connects northeastern residential areas to Elkins Avenue. The speed limit is 25 mph, and on-street parking is permitted. The roadway also provides direct access to the entrance/exit driveway of the Arcadia Wilderness Park.

According to the Arcadia General Plan EIR, traffic counts in 2010 show approximately 365–557 vehicles during the peak hour passed on Santa Anita Avenue in the Project area, which is Level of Service (LOS) of A or B in both the AM and PM Peak Hours (Arcadia 2010c). Far fewer vehicles are expected on Chantry Flats Road during peak hours as it enters the Angeles National Forest. Existing vehicle trips to the Dam are minimal and include an average of a couple of trips per day for maintenance-related activities.

I-210 is generally an east-west freeway located approximately 1.6 miles to the south of the Project site. The freeway functions as the primary linkage between many suburban cities and communities that surround Los Angeles to the north and east. In the project vicinity, I-210 has four general purpose traffic lanes and one high-occupancy vehicle (HOV) lane in each direction. On- and off-ramps are provided at Santa Anita Avenue. Average daily volumes at the segment crossing the Santa Anita Avenue exit were estimated at approximately 17,500 to 17,700 vehicles per peak hour in 2010 (Caltrans 2011).

The 2010 Congestion Management Program for Los Angeles County identifies the segment of I-210 between the I-605 and the community of Sunland is operating at an LOS D or better in both the AM and the PM Peak Hours (Metro 2010). Additionally, Caltrans does not identify this segment of I-210 as being a “Congested Urban Area” (Caltrans 2010).

4.16.2 IMPACT ANALYSIS

Project Design Feature

PDF TRA-1 Heavy-duty diesel truck vehicle (with a Gross Vehicle Weight Rating of 10,000 lbs. or heavier) trips shall be scheduled to avoid school crosswalks at Highland Oaks Elementary School during peak drop-off hours between 8:00 AM to 9:00 AM and pick-up hours between 2:00 PM to 3:00 PM. As required by State Commercial Vehicle Idling Regulations, trucks shall be prohibited from idling for more than 5 minutes if queuing within 100 feet from any residential area.

Regulatory Requirements

RR TRA-1 The movement of large equipment on public roadways shall be made in compliance with the Los Angeles County Code (Title 16, Highway), which requires a moving permit and which includes provisions regarding the size of vehicles/equipment; night moves; moving in inclement weather; parking on streets; travel outside peak hours and holidays; over-length, over-height, and over-width requirements; lighting; signs; and restricted routes. Oversized transport vehicles on State highways, if required, would need to obtain a transportation permit from the California Department of Transportation (Caltrans). Oversized transport vehicles on local roadways, if required, would need to obtain a transportation permit from the Cities of Arcadia and Sierra Madre.

RR TRA-2 The County’s general construction requirements require the implementation of temporary traffic control in accordance with the *Standard Specifications for Public Works Construction* (Greenbook), which contains standards for traffic and access (i.e., maintenance of access, traffic control, and notification of emergency personnel). The Contractor shall provide temporary traffic control in accordance with the Greenbook during construction activities.

RR TRA-3 Design, construction, and operation of the helipad at the Santa Anita Dam shall comply with the requirements of all regulatory and oversight agencies including, but not limited to, the FAA, Caltrans, and Los Angeles County Department of Regional Planning Airport Land Use Commission.

Impact Discussion

a) Would the project 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?

Less than Significant Impact. The Project would generate traffic from the I-210 to N. Santa Anita Avenue, where trucks/workers going to the Dam would continue up Chantry Flats Road. Trucks/workers going to the Headworks and Culvert Crossing would continue from N. Santa Anita Avenue to Elkins Avenue, to Highland Oaks Drive and into the Arcadia Wilderness Park. Trucks/workers going to the Debris Dam would continue from N. Santa Anita Avenue to Elkins Avenue, where the trucks would enter a gated driveway just north of the spreading basins.

During the approximate 10-month construction period, the traffic impacts that would occur within public streets are related to movement of construction equipment and construction worker trips. Once construction equipment is transported to the various flood-control facilities, it is anticipated that the equipment would remain on site until the end of each phase and all Project-related traffic impacts would be related to workers entering and leaving the Project site during the workdays. There would also be trips associated with vendors delivering construction materials, haul trucks removing export materials to disposal sites, and trucks importing concrete and fill materials. In order to minimize the export of waste, is anticipated that most of the excavated material and demolished concrete would be reused/recycled on site as backfill at the Debris Dam.

Peak trucking periods, including concrete trucks and dump trucks for hauling fill material, would occur at two distinct construction phases: (1) a two-week period in December 2015, when construction at the Dam (reinforcement of the armoring on the downstream canyon wall and construction of the helipad) would occur; concrete pours and other material deliveries would require approximately 50 daily round trips (e.g. equates to approximately 6.3 round trips per hour per workday-assuming 8 hours of activity per day); and (2) over approximately 5 weeks starting in August 2016, when construction of the Debris Dam buttresses would require approximately 74 round trips for soil import per day (e.g. equates to approximately 9.2 round trips per hour per workday-assuming 8 hours of activity per day). The anticipated schedule for construction activities are shown in Table 3-1 and the anticipated number of truck/worker trips during each period are shown in Table 3-2.

These construction-related trips would add to traffic volumes on the local roadway system. As stated above, the LOS on Santa Anita Avenue, which would be the primary thoroughfare for construction related traffic, is at LOS B or better during Peak Hours. The only traffic that could affect peak hour traffic would be up to 25 worker trips to and from the Project site, although many of these trips would occur early in the morning prior to the peak traffic hours. All truck trips, including the approximately 74 daily round-trip truck trips for soil import, would be required to avoid morning and evening peak hours, per RR TRA-1 requiring compliance with the Los Angeles County Code (Title 16, Highway). RR TRA-1 requires scheduling travel outside peak hours and holidays. Due to minimal impacts to peak hour traffic, the current minimal traffic along the trucking route, and the temporary nature of the construction activities, Project implementation would not

have a measurable impact on traffic on N. Santa Anita Avenue or the other local streets, including Elkins Avenue and Highland Oaks Drive.

RR TRA-2 ensures that construction traffic would be managed in compliance with Greenbook standards and applicable requirements to limit roadway obstruction and the need for temporary detours. PDF TRA-1 would ensure that truck trips would be scheduled to avoid school drop-off and pick-up times, thereby minimizing roadway hazards, congestion, and queuing on local roads. Compliance with RRs TRA-1 and TRA-2 and incorporation of PDF TRA-1 would ensure that Project-related traffic impacts remain less than significant.

There would be no impact to the use of mass transit systems, non-motorized travel, or pedestrian and bicycle paths with Project implementation because the Project site is not near any alternative transportation systems and is likely too far to allow for bicycle or pedestrian access to the site by Project workers. The nearest bus stop is located at Santa Anita Avenue and Sierra Madre Boulevard, located approximately 1.2 miles south of the Debris Dam.

b) Would the project conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand established by the county congestion management agency for designated roads or highways?

Less than Significant Impact. The Los Angeles County Congestion Management Program (CMP) calls for monitoring of the highway and roadway system in the County and a multi-modal system performance analysis. The program also promotes alternative modes of transportation; requires monitoring of land use and roadway performance by individual jurisdictions; and provides guidelines for conducting a Traffic Impact Analysis (TIA). The CMP TIA guidelines require analysis of freeway segments, ramps, and intersections if a proposed project would add 150 or more trips (in either direction) during either the AM or PM weekday peak periods at any CMP location.

There are no CMP intersections north of the I-210 Foothill Freeway in the western San Gabriel Valley. Therefore, none of the intersections that could be affected by Project-related traffic are part of the 164 CMP arterial monitoring locations or freeway system according to CMP guidelines and threshold of significance (Metro 2010). Implementation of the Project would generate additional vehicle trips from short-term demolition and construction activities; however, it would not generate any long-term increases in traffic that would conflict with the County's CMP. The Project would not add more than 50 trips at any CMP arterial monitoring station during the AM or PM peak hour, nor would it add 150 or more trips to the freeway system. Therefore, impacts would be less than significant.

c) Would the project result in a change in air traffic patterns, including either an increase in traffic levels or change in location that results in substantial safety risks?

Less than Significant Impact. The Project would include construction of a new helipad to provide aerial access to the Dam in the event of an emergency. It is anticipated that the helipad would only be used one or two times per year. In compliance with RR TRA-3, the helipad would require approval and permits from a number of agencies, including the FAA, Caltrans, and Airport Land Use Commission. All helicopter operations would comply with the requirements of each of the regulatory agencies. Therefore, impacts on air traffic patterns would be less than significant.

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

e) Would the project result in inadequate emergency access?

Less than Significant Impact. Construction activities related to the Project would not require changes to any road configurations that could create sharp curves or dangerous intersections. Construction activities would largely be staged on the Project site and would not obstruct emergency access. The Project may temporarily impact local roadways during construction. Although there are no significant impacts related to this issue, compliance with RR TRA-1 ensures that construction traffic would be managed in compliance with Greenbook standards. In addition, RR TRA-2 would require that the movement of large equipment on public roadways be made in compliance with Title 16 of the Los Angeles County Code, and PDF TRA-1 would ensure that truck trips would be scheduled to avoid school drop-off and pick-up times, thereby minimizing congestion and queuing on local roads. Therefore, impacts related to emergency access would be less than significant.

f) Would the project conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?

No Impact. Implementation of the Project would not create a demand for alternative transportation systems and would not affect public transit services. No demand for public transit, bicycle, or pedestrian facilities would be created by the Project since there would be no change to land uses in the Project area. The increase in truck traffic on Santa Anita Avenue would have no impact on alternative transportation systems.

4.16.3 MITIGATION MEASURES

There would be no significant impacts related to transportation/traffic; therefore, no mitigation measures are required.

4.17 UTILITIES AND SERVICE SYSTEMS	Potentially Significant Impact	Less than Significant with Mitigation	Less than Significant Impact	No Impact
Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☒	☐
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐
c) Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
d) Have sufficient water supplies available to serve the Project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☒	☐
e) Result in a determination by the wastewater treatment provider which serves or may serve the Project that it has inadequate capacity to serve the Project's Projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐
f) Be served by a landfill with sufficient permitted capacity to accommodate the Project's solid waste disposal needs?	☐	☐	☒	☐
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☒	☐

4.17.1 EXISTING CONDITIONS

There are power lines in the Project area that provide electricity to the various flood-control facilities. Stormwater on the Project site drains directly into Santa Anita Wash and is managed through the Project-related facilities under the jurisdiction of the LACFCD. Wastewater and solid waste generation at the Project site is confined to the Dam Operator's residence, as well as at the Arcadia Wilderness Park restroom facilities, which are connected to the City's main sewer system via a connector line that runs along the side of the Wilderness Park Culvert Crossing, as shown in Exhibit 3-5, Culvert Crossing Plan.

4.17.2 IMPACT ANALYSIS

Regulatory Requirements

RR UTL-1 Construction activities on the Project site shall be conducted in compliance with Chapter 20.87 (Construction and Demolition Debris Recycling and Reuse) of the Los Angeles County Code, which requires at least 50 percent of all Collection and Demolition (C&D) debris, soil, rock, and gravel removed from the Project site to be recycled or reused unless a lower percentage is approved by the Los Angeles County Director of Public Works. A Recycling and Reuse Plan (RRP) must be submitted by the Contractor to the Los Angeles County Department of Public Works, Environmental Programs Division. The RRP must contain a Project description and the estimated total weight of the project C&D debris, with separate

estimates for (1) soil, rock, and gravel; (2) other inert materials; and (3) all other project C&D debris. The ordinance also requires that annual progress reports be submitted to the LACFCD for review.

Impact Discussion

a) Would the project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

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

Less than Significant Impact. The Project only involves short-term construction related to the improvement of the LACFCD flood-control facilities. The Project would not generate wastewater that would require conveyance or treatment in on-site septic systems or at wastewater plants in the region. Portable toilets would be provided for employees at the construction areas, and these portable toilets would be regularly cleaned and their contents disposed of offsite by an outside company. Wastewater from these portable toilets would not exceed the treatment requirements of the RWQCB, and the Project would not need new or expanded treatment facilities. Capacity at existing wastewater treatment plants would not be exceeded. Impacts related to wastewater facilities would be less than significant.

b) Would the project 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?

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

Less than Significant Impact. The Project would require water for the control of fugitive dust on access roads and at the construction sites, which would be provided by a water truck on an as-needed basis. Water for dust control would be sourced from municipal water supplies and trucked to the Project site; however, the amount of water is expected to be limited. Construction-related water needs at the Dam site could be supplemented through the existing on-site water supply and no additional sources would be required.

While the Project would include improvements to the potable water distribution system at the Dam, there would be no substantive change in long-term water demand at the Dam. It is likely that water demand would decrease due to the elimination of the Dam Operator House. No other Project components have long-term potable water demands. Therefore, the Project would not need new water supplies, tanks, pumps, or other water system facilities and there would be a less than significant impact.

c) Would the project require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

No Impact. Implementation of the Project would increase opportunities to capture and infiltrate storm flows emanating from the Santa Anita Canyon Watershed into the groundwater basin. Remediating the seismic deficiencies at the Debris Dam would result in the DSOD removing the operational restrictions on the facility, thereby restoring 119 acre-feet of water conservation capacity. The Debris Dam would also be enlarged by raising the existing spillway by 4 feet, which

would create 40 acre-feet of additional storage for a total of 159 acre-feet. When captured stormwater is released to the spreading grounds for groundwater recharge, the Debris Dam can then capture more runoff, which would allow for water storage capacity multiple times depending on the frequency, duration, and intensity of storm events. In doing so, less water would need to be sent to the downstream stormwater drainage infrastructure. Therefore, the Project would have no impact on the capacity of the existing downstream stormwater drainage system and no mitigation is required.

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

g) Would the project comply with federal, state, and local statutes and regulations related to solid waste?

Less than Significant Impact. Construction of the Project would generate solid waste, including approximately 1,187 cubic yards (cy) of concrete, metal, and excavated soil during construction of the Dam, Headworks, and Debris Dam improvements. The nearest landfill that could accept solid waste from the Project site is the Puente Hills Landfill, located at 13130 Crossroads Parkway South in the City of Industry; however this landfill was closed on October 31, 2013. The second nearest landfill is the Savage Canyon Landfill, located at 13919 East Penn Street in Whittier. According to the *County of Los Angeles Countywide Integrated Waste Management Plan 2011 Annual Report* published in August 2012 by the LACDPW, the Savage Canyon Landfill has a maximum permitted daily capacity of 350 tons per day (584 cy) and an anticipated closure date of 2061 (LACDPW 2012). As previously noted, the majority of soil import/export required for Project construction would be reused or balanced on site. The remaining approximately 1,187 cy of inert construction waste (e.g., concrete, metal, packaging waste) would be disposed of at a municipal solid waste facility. This volume of debris represents approximately 203 percent of the Savage Canyon Landfill's daily capacity. However, the debris would be exported from the site over several months (rather than in a single day). Therefore, both these landfills have available capacity to accommodate the Project construction waste stream.

Additionally, all waste generated during construction of the Project would be handled and disposed of in compliance with all applicable federal, State, and local statutes and regulations related to solid waste, including RR UTL-1, which requires at least 50 percent of all C&D debris to be recycled or reused, and RR HAZ-1 (from Section 4.9, Hazards and Hazardous Materials), which requires that hazardous materials encountered on site be handled and disposed of in accordance with applicable laws. With implementation of RR UTL-1, there would be approximately 593 cy of inert construction waste requiring landfill disposal. Therefore, with implementation of RRs UTL-1 and HAZ-1, there would be less than significant impacts related to landfill capacity and solid waste regulations.

Solid wastes generated by employees and other on-site activities during long-term Project operation (i.e., maintenance visits and repair) would be similar to the existing condition and would be minimal. The long-term solid waste stream would not be large enough to require any measurable landfill capacity.

As such, neither construction nor operation of the Project would directly or cumulatively exceed capacity of the likely landfills serving the Project site. The Project would comply with RR UTL-1 and all applicable federal, State, and local statutes and regulations related to solid waste. Impacts related to landfill capacity and solid waste regulations would be less than significant and no mitigation is required.

4.17.3 MITIGATION MEASURES

There would be no significant impacts related to utilities and service systems; therefore, no mitigation measures are required.

4.18 MANDATORY FINDINGS OF SIGNIFICANCE	Potentially Significant Impact	Less than Significant with Mitigation	Less than Significant Impact	No Impact
Does the project:				
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 rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☒	☐
b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☐	☒	☐
c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

4.18.1 MANDATORY FINDINGS OF SIGNIFICANCE ANALYSIS

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 rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?

Less than Significant Impact. As discussed above in Section 4.4, Biological Resources, although there are no Rare or Endangered plant or animal species found on the Project site, Project implementation would lead to the disturbance of existing plant, aquatic, and/or animal habitats on and near the Project site. Mitigation measures MMs BIO-1 through BIO-5 have been developed to reduce potential environmental impacts on biological resources to less than significant levels. Implementation of the mitigation measures would ensure that the Project does not degrade the quality of the environment; substantially reduce the habitat of 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 reduce the number or restrict the range of a Rare or Endangered plant or animal.

As discussed in Section 4.5, Cultural Resources, there would be less than significant impacts to known historic, archaeological, and/or paleontological resources. Potential impacts to unknown archaeological resources and potential impacts to human remains from implementation of the Project would comply with RRs CUL-1 and CUL-2. Therefore, the Project does not have the potential to eliminate important examples of the major periods of California history or prehistory.

b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" 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)?

Less than Significant Impact. As shown in the analysis in Sections 4.1 through 4.17 above, all construction-related impacts—identified for aesthetics, biological resources, geology and soils, hazards, and noise—would be mitigated to a less than significant level. As demonstrated by the analysis in this IS/MND, there would be no long-term operational impacts because the Project consists of improvements to existing flood-control facilities, which would continue operating in a similar manner to existing conditions. The long-term operation of the helipad would result in a new facility in the Project study area; however, there would be no long-term environmental impacts requiring mitigation.

The area surrounding the Project site is primarily comprised of open space wilderness areas to the north and east, and single-family neighborhoods to the west and south. Single-family residential areas are largely built-out; therefore, potential future projects in the area would be limited to in-fill residential-scale improvements, which would not be considered cumulatively considerable. The only known non-residential projects that would occur near the Project site include the LACFCD's improvements to the spreading basins downstream of the Project site, and the LACFCD's Oak Woodland Habitat Revegetation/Mitigation Program (OWHMP) at the Lower Sediment Placement Site (SPS), located approximately 0.8 mile south of the Debris Dam. All spreading basin improvements are anticipated to be completed in 2015 prior to the rainy season and would therefore not overlap with the Project's construction activities, which would commence in December 2015 at the Dam, and in April 2016 at the Debris Dam.

The OWHMP includes the creation of 5.5 acres of oak woodland habitat and 2.5 acres of sage scrub habitat as compensation for impacts associated with the Santa Anita Dam Riser Modification and Sediment Removal Project. The primary goal of the on-site mitigation program is to create a developing, diverse, self-sustaining oak woodland and associated scrub that will result in habitats of similar quality and ecological function to the habitat areas impacted by the Sediment Removal Project.

The Lower SPS is accessed via the same entrance (Elkins Avenue gate) and on-site maintenance roads as the Debris Dam, and would therefore share the same local access roadways as the Project. Activities requiring the use of construction equipment at the Lower SPS have already been completed, including bulk grading, precise grading (and relocation of 1,100 yards of soil to the Middle SPS), and surface soil decompaction on the plateau. Installation of mitigation (irrigation system, container plant, and seed mix installation) will be completed in two phases. The first phase occurred from January to March 2014, while the second phase is anticipated to occur from November to December 2014. Upon the completion of mitigation installation tasks, maintenance and monitoring activities would occur for the following seven to ten years, as required by the natural resource agencies. Maintenance tasks will primarily include weed removal and the operation and maintenance of the irrigation system. These tasks will be performed on an approximate biweekly basis for at least the first two years of the maintenance period, with an expected reduction in maintenance frequency in the later years of the program.

Because the Project would result in only construction-period impacts, a cumulatively considerable impact could only occur if construction of a development project in the Project vicinity was constructed at the same time as the Project, which would be implemented in phases over an approximately 10-month period. As construction for the improvements at the Debris Dam are not expected to start until April 2016, there is no expected overlap of construction with the earthwork

activities associated with the OWHMP. While the Project would coincide with ongoing maintenance and monitoring activities for the OWHMP, based on the relatively minor number of trips required (typically one or two flatbed trucks and/or large utility vehicles with as many as 10 to 12 workers), combined with the lack of significant and unavoidable impacts associated with the Project after mitigation, the potential for cumulatively considerable impacts due to the Project is remote. However, the following discusses the potential for cumulative impacts for each of the topics addressed in this IS/MND.

As discussed in Section 4.1, Aesthetics, potential visual impacts due to removal of trees adjacent to the Culvert Crossing would be mitigated with implementation of MM AES-1. As discussed, the Project involves improvements to existing stormwater flood-control facilities, and therefore views into the Project site from public vantage points would not substantively change because the improvements would occur on existing facilities. The new helipad, three-bay garage, water pipelines, and power poles would not be visible from public vantage points, and operation of the helipad would be very infrequent. Views of construction activity at the Dam, Headworks, Wilderness Park Culvert Crossing, and Debris Dam would be fleeting or partial views by motorists or hikers, and would be temporary and similar to other construction sites and not typically considered adverse. The Project would not result in cumulatively considerable aesthetic impacts.

As discussed in Section 4.2, Agriculture and Forestry Resources, no mitigation is required for either short-term or long-term impacts due to Project implementation. Implementation of the Project would not have a cumulatively considerable effect on the conversion of agricultural land to non-agricultural uses because (1) there are no active agricultural activities on the Project site; (2) the site does not contain FMMP-designated Farmland; and (3) is not under a Williamson Act contract. Conversion of Other Land or Grazing Land to non-agricultural uses is not considered a significant impact under CEQA.

As discussed in Section 4.3, Air Quality, no mitigation is required for either short-term or long-term impacts due to Project implementation. The SCAQMD's approach for assessing cumulative impacts is based on the AQMP forecasts of attainment of ambient air quality standards in accordance with the requirements of the Federal and State Clean Air Acts. As discussed in Threshold 4.3(a), the Project would be consistent with the AQMP, which is intended to bring the SoCAB into attainment for all criteria pollutants.[12] In addition, the mass regional emissions calculated for the Project (Table 4-5) would be lower than the applicable SCAQMD daily significance thresholds that are designed to assist the region in attaining the applicable State and national ambient air quality standards. With regard to cumulative local impacts due to concurrent construction activities of related projects, there are no projects currently active or proposed within the local vicinity, as described above. The Project would not result in cumulatively considerable air quality impacts.

As discussed in Section 4.4, Biological Resources, potential impacts related to Englemann oak trees; Pacific pond turtle; active bird and raptor nests protected under the MBTA; roosting bats; southern cottonwood willow riparian forest and sycamore alluvial woodland/southern riparian woodland vegetation types; and jurisdictional resources would be mitigated through implementation of MMs BIO-1 through BIO-5, respectively. Cumulative impacts on Biological Resources include changes in plant and animal habitats in the Project vicinity due to increasing

[12] Section 15064(h)(3) of the State CEQA Guidelines states "A lead agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project will comply with the requirements in a previously approved plan or mitigation program which provides specific requirements that will avoid or substantially lessen the cumulative problem (e.g. water quality control plan, air quality plan, integrated waste management plan) within the geographic area in which the project is located. Such plans or programs must be specified in law or adopted by the public agency with jurisdiction over the affected resources through a public review process to implement, interpret, or make specific the law enforced or administered by the public agency".

urbanization and population growth in the region. New developments would also need to conduct biological surveys and provide the required on-site preservation or off-site mitigation in coordination with the CDFW, the USFWS, the USACE, and the RWQCB. However, the Project would result in only construction-period impacts, and would not result in substantial degradation of biological resources with implementation of mitigation, as discussed under Threshold 4.18(a) above. Therefore, the Project would not result in cumulatively considerable biological resource impacts.

As discussed in Section 4.5, Cultural Resources, potential impacts related to unknown archaeological resources, paleontological resources, and human remains would be addressed through compliance with RRs CUL-1 and CUL-2. Due to the site-specific nature of cultural resources, it is difficult to determine if significant cumulative impacts to cultural resources would occur on individual development sites, if present. Since cultural resources are site-specific, no cumulative significant adverse impacts are expected from future developments with implementation of site-level surveys and mitigation outlined as part of cultural resource studies for individual development projects. Therefore, the Project would not result in cumulatively considerable cultural resource impacts.

As discussed in Section 4.6, Geology and Soils, potential impacts related to seismic-related hazards, such as liquefaction and landslides, would be mitigated with implementation of MM HAZ-1, which requires a Site Health and Safety Officer, an Access and Evacuation Plan, identification of site hazards, and response protocols in the event of an earthquake or landslide. Geology and soils impacts are generally site specific and there is typically little, if any, cumulative relationship between the development of a Project and development within a larger cumulative area. For example, development at the Project site would not alter geologic events or soil features/characteristics (such as ground shaking, seismic intensity, or soil expansion) at other locations; therefore, the Project would not result in cumulatively considerable geology and soils impacts.

As discussed in Section 4.7, Greenhouse Gas Emissions, no mitigation is required for either short-term or long-term impacts due to Project implementation. Construction-related emissions would be negligible (23 $MTCO_2e$/yr) and there would be no Project-generated change in GHG emissions compared with the existing conditions. The operations of the helipad, which are anticipated to occur one to two times per year, would have negligible air quality impacts. Therefore, the Project would not result in cumulatively considerable GHG emissions impacts.

As discussed in Section 4.8, Hazards and Hazardous Materials, potential impacts related to hazardous material spills during construction would be less than significant. Potential impacts related to increased site hazards risks and wildfire risk would be mitigated through implementation of MMs HAZ-1 and HAZ-2. Any project is required to address issues related to hazards and hazardous materials or wastes, and federal, State, and local regulations require measures to protect against site contamination by hazardous materials as well as wildfire risks. Therefore, the Project would not result in cumulatively considerable hazards and hazardous materials impacts.

As discussed in Section 4.9, Hydrology and Water Quality, no mitigation is required for either short-term or long-term impacts due to Project implementation. With incorporation of appropriate BMPs during construction, the Project's surface runoff water quality would comply with adopted regulatory requirements (RRs HYD-1 and HYD-2) that are designed by the RWQCB to ensure that construction activity does not adversely affect water quality and hydromodification in receiving streams. Operation of the Project would not violate any water quality standards or waste discharge requirements. Therefore, the Project's incremental contribution to cumulative surface water quality impacts is not significant. Regarding groundwater and storm drainage, implementation of the Project would increase opportunities to capture and infiltrate storm flows

emanating from the Santa Anita Canyon Watershed into the Raymond Basin. Implementation of the Project would not result in the redirection of flows or alteration of drainage patterns when compared to the existing condition. Also, the Project would improve the system's overall ability to capture sediment-laden stormwater runoff and stormwater flows, thereby resulting in a beneficial impact related to drainage and flooding. Therefore, the Project would not result in cumulatively considerable hydrology and water quality impacts.

As discussed in Section 4.10, Land Use and Planning, no mitigation is required for either short-term or long-term impacts due to Project implementation. The Project would not change existing land uses at the Project site. The proposed improvements to the existing flood-control facilities in the Santa Anita Wash do not conflict with the land use and zoning designations in the City of Arcadia General Plan and Zoning Code. RR USE-1 required the submittal of plans to the USFS for construction of the Dam in accordance with the USFS Special Use Permit (SUP). The proposed improvements at Dam also would not conflict with the "Back Country, Motorized" zone of the USFS Land Management Plan. Implementation of the Project would not divide an established community; and there is no habitat conservation plan or natural community conservation plan for the Project area, nor is the Project located within the County's SEA program. Therefore, the Project would not result in cumulatively considerable land use and planning impacts.

As discussed in Section 4.11, Mineral Resources, no mitigation is required for either short-term or long-term impacts due to Project implementation. While the CGS has designated the Project site as an area containing significant mineral resources, the presence and ongoing operation of the Dam since 1927 precludes the use of the area for commercial aggregate resource production. The Project would not require mineral resources, nor would it change the availability of resources on or near the Project site. However, the presence of the LACFCD's flood-control facilities do not necessarily preclude future mining activity, if desired by the LACFCD and USFS. Additionally, no new structures or facilities would be constructed that could restrict future mineral resource recovery activities. Therefore, the Project would not result in cumulatively considerable mineral resource impacts.

As discussed in Section 4.12, Noise, potential impacts related to construction noise and vibration would be mitigated with implementation of MMs NOI-1 through NOI-4. Overlapping construction activities can increase noise in a Project vicinity but, as discussed above, due to the surrounding land use types combined with the effects of noise attenuation and the remote likelihood of construction activity occurring in the immediately vicinity of Project construction activity at the same time, construction noise and vibration levels, which are less than significant with mitigation, would not be cumulatively considerable. Operational noise associated with the Project is negligible and would not be cumulatively considerable.

As discussed in Section 4.13, Population and Housing, no mitigation is required for either short-term or long-term impacts due to Project implementation. The Project would have no residential uses and would not directly or indirectly affect local or regional population projections. Therefore, the Project would not result in cumulatively considerable population or housing impacts.

As discussed in Section 4.14, Public Services, no mitigation is required for either short-term or long-term impacts due to Project implementation. In general, cumulative impacts on public services occur with increasing demands for services from a Project and from related projects in the respective service areas of affected services. The Project would not involve the construction of any new land uses, structures, or other improvement or operational activities that could increase demands for long-term fire protection, sheriff protection, schools, parks or other public

services, nor would the Project indirectly affect population growth. Therefore, the Project would not result in cumulatively considerable public services impacts.

As discussed in Section 4.15, Recreation, no mitigation is required for either short-term or long-term impacts due to Project implementation. The Project would not generate a need for or increase the use of neighborhood and regional parks, including nearby recreational trails, or affect access to the Wilderness Park during construction activities.

As discussed in Section 4.16, Transportation and Traffic, no mitigation is required for either short-term or long-term impacts due to Project implementation. The LOS on Santa Anita Avenue, which would be the primary thoroughfare for construction related traffic, is at LOS B or better during peak hours. During construction activities, the addition of up to 25 worker trips in the morning and evening and 75 daily truck round trips during off-peak hours (as required by RR TRA-1) would not have a measurable impact on traffic on Santa Anita Avenue or the other local streets that would be used, including Elkins Avenue and Highland Oaks Drive. There would be remaining capacity for other temporary construction traffic in the unlikely event a related project's construction overlaps with the Project and the same roadway(s) are used. The Project would not result in any long-term changes in traffic and would not cumulatively considerable transportation and traffic impacts.

As discussed in Section 4.17, Utilities and Service Systems, no mitigation is required for either short-term or long-term impacts due to Project implementation. The Project would not generate wastewater, and would increase groundwater recharge and therefore have no impact on the downstream stormwater drainage system capacity. The Project would require water for the control of fugitive dust on access roads and at the construction sites, which would be provided by a water truck on an as-needed basis. There is ample capacity available in local landfills that could serve the Project to dispose of the approximately 1,187 cy of inert construction waste anticipated with Project implementation. The Project would not result in new households or habitable structures that could generate long-term demands for utilities. Therefore, the Project's negligible demand for utilities and service systems during construction would not result in cumulatively considerable impacts.

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

Less than Significant with Mitigation. The Project would have environmental effects that could cause substantial adverse effects on human beings, either directly or indirectly, as they relate to Geology and Soils (landslide hazards during construction), Hazards and Hazardous Materials (emergency response and wildfire risk), and Noise as previously discussed within the text under these environmental issues. Mitigation measures have been provided to reduce these impacts to less than significant levels, including MMs HAZ-1, HAZ-2, and NOI-1 through NOI-4. Thus, the potentially significant adverse effects on human beings would be less than significant after mitigation. Implementation of the Project would also have beneficial impacts by addressing seismic safety and other structural issues, and preventing flood damage to downstream communities.

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