

ALCOA DIKE PROJECT
County of Riverside, California

DRAFT
SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT
AND
ENVIRONMENTAL IMPACT REPORT ADDENDUM

Prepared for:



**US Army Corps
of Engineers®**

Los Angeles District

April 2018

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1. INTRODUCTION

1.1 INTRODUCTION

This Supplemental Environmental Assessment (SEA) and Environmental Impact Report (EIR) Addendum for the Alcoa Dike portion of the Santa Ana River Mainstem Flood Control Project (SARMP), is being prepared by the U.S. Army Corps of Engineers (Corps) as a supplement to the Final Supplemental Environmental Impact Statement (SEIS) and EIR for Prado Basin and Vicinity, dated November 2001. This SEA and EIR Addendum satisfies requirements of the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA) documentation.

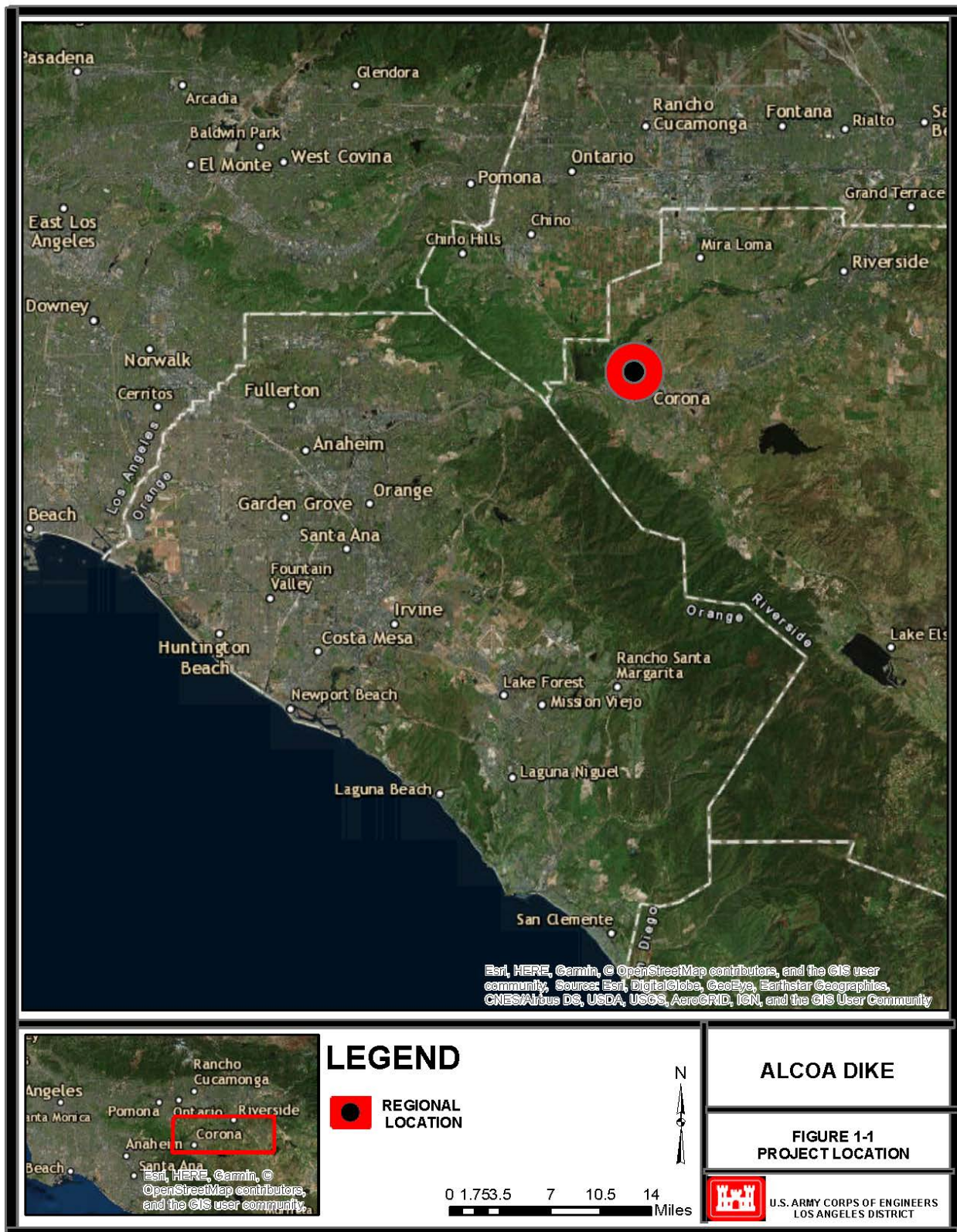
The purpose of the SARMP is to provide flood risk reduction to areas within the counties of San Bernardino, Riverside, and Orange, currently susceptible to flooding. The Corps is the lead agency for compliance with NEPA, and the Orange County Flood Control District (OCFCD), one of the three SARMP local sponsors) has been the lead agency for compliance with CEQA, as they are responsible for future maintenance of many of the SARMP features. Other agencies (i.e., cooperating, responsible, and trustee agencies) that may use this SEA and EIR Addendum in the decision making or permit process will consider the information in this document along with other information that may be presented during the NEPA/CEQA process. Other responsible and trustee agencies were identified in the 2001 Final SEIS/EIR, and are listed again as follows:

- California Department of Fish and Game (now California Department of Fish and Wildlife)
- Santa Ana Regional Water Quality Control Board
- United States Fish and Wildlife Service
- California Department of Parks and Recreation
- City of Corona, and
- Orange County Water District.

This SEA and EIR Addendum is necessary to document and evaluate the impacts of design refinements on environmental resources, and to document changed conditions in the project area. The changes to the Alcoa Dike feature design, including real estate/relocation actions required of the sponsor, consist of specifying a different thickness and placement method for the outer rip rap layer, an increase in the length and height of the dike, addition of two maintenance access roads, addition of two drainage structures extending through the main dike embankment, addition of two culverts extending through roadway embankments, addition of a concrete v-ditch and drainage pipe to Temescal Creek, three new ponding areas, addition of a single swing floodgate at Auburndale Street instead of raising that road, realignment of the downstream end of the dike westerly on Butterfield Drive, realignment of the upstream end of the dike to extend easterly along Rincon Street between Auburndale Street and Lincoln Avenue, raising of Rincon Street to match the elevation of the proposed dike, road modification of Rincon Street to meet current design standards, and road realignment of Butterfield Drive (which is a sponsor paid betterment feature, while all other aspects of dike construction will be cost-shared project features).

1.2 PROJECT LOCATION

The Alcoa Dike project area is located in the City of Corona, Riverside County (Figure 1-1, Project Location), adjacent to the Santa Ana River. The Santa Ana River is an approximately 100 mile long waterway that runs from the San Bernardino Mountains to Huntington Beach in southern California. The Lower Santa Ana River runs from Prado Dam, in Riverside County, to its terminus approximately 30



miles downstream, at huntington beach, orange county. this sea/eir addendum focuses on the construction of an embankment along the southeastern perimeter of prado basin in the city of corona, riverside county (figure 1-2), which augments other existing perimeter dikes around the prado basin (figure 1-3). the alcoa dike project is located south of the corona national housing tract dike, east of the corona sewage treatment plant dike, and would cross over butterfield drive, rincon street, and auburndale street. the feature was originally named for the alcoa aluminum plant that at one time was located in this area of the basin. while that plant no longer exists in this location, the flood risk reduction that would be provided by this feature is still needed for other developments and private property in the area.

1.3 PROJECT AUTHORITY

The Santa Ana River Mainstem Project (SARMP) is located along a 75-mile reach of the Santa Ana River in Orange, Riverside, and San Bernardino Counties, California. The SARMP is a comprehensive flood risk management system that was authorized for construction by Section 401(a) of the Water Resources Development Act (WRDA) of 1986.

The recommended plan for the SARMP is contained in the Phase I General Design Memorandum (GDM) for the SARMP (Corps 1980) and included eight elements, which were subsequently reevaluated in the Phase II GDM (Corps 1988). The Phase II GDM modified the SARMP by redefining the authorized SARMP features and clarifying that the Standard Project Flood term referred in most cases to the 190-year flood event. Construction of the SARMP commenced in fiscal year 1989.

In 2001, the Corps submitted a Limited Reevaluation Report (LRR) entitled Prado Dam Separable Element, Prado Basin & Vicinity, including Stabilization of Bluff Toe at Norco Bluffs Santa Ana River Basin, California, dated September 2001 pursuant to Section 309(a) of WRDA of 1996, which required the Corps to “review” the Prado Dam feature, a component feature of the SARMP. The LRR was approved by the Director of Civil Works on August 16, 2002. The LRR recognized, consistent with the Phase I GDM and Phase II GDM, that the purpose of the proposed Prado Dam improvements was to increase the reservoir storage capacity from 217,000 acre-feet to 362,000 acre-feet and to be able to release 30,000 cfs flows from Prado Dam into the downstream channels. In accordance with the determination in the LRR to construct Prado Dam as a separable element, the Prado Dam component was removed from the definition of the project in the LCA by a second modification to the LCA dated February 24, 2003. A Project Cooperation Agreement for the Prado Dam feature as a separable element was signed on February 11, 2003, with OCFCD as the non-Federal sponsor.

The specific feature of the Prado Basin and Vicinity addressed by this SEA/EIR Addendum is the Alcoa Dike project, which is located approximately 2.5 miles east of the Prado Dam in the City of Corona.

1.4 PREVIOUSLY PREPARED DOCUMENTS

Below is a list of the relevant environmental documents that have been completed for the Project. Throughout the analysis of this SEA/EIR Addendum, the following documents may be referenced:

- Survey Report and Environmental Impact Statement, United States Army Corps of Engineers, Los Angeles District, 1975.
- Phase I General Design Memorandum and Supplemental Environmental Impact Statement, United States Army Corps of Engineers, Los Angeles District, 1980.

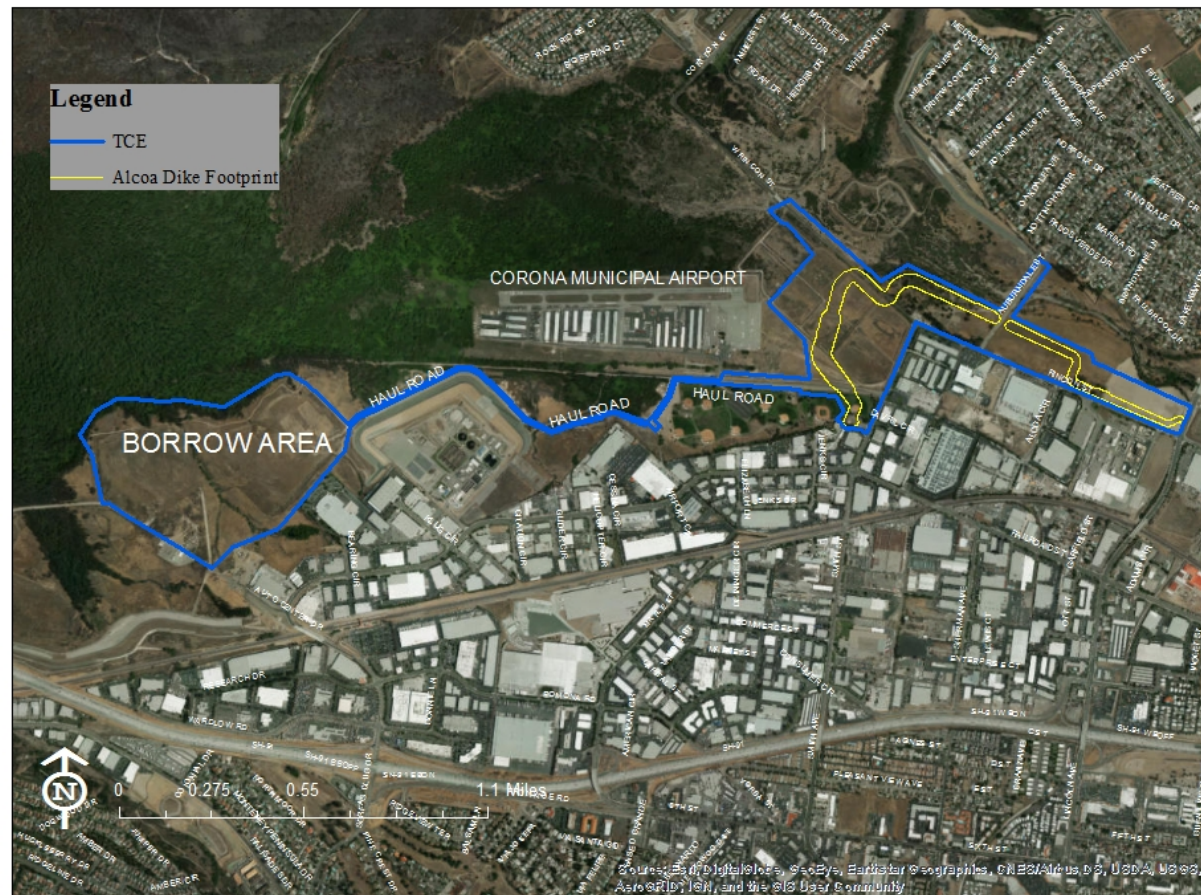


Figure 1-2. Project Vicinity

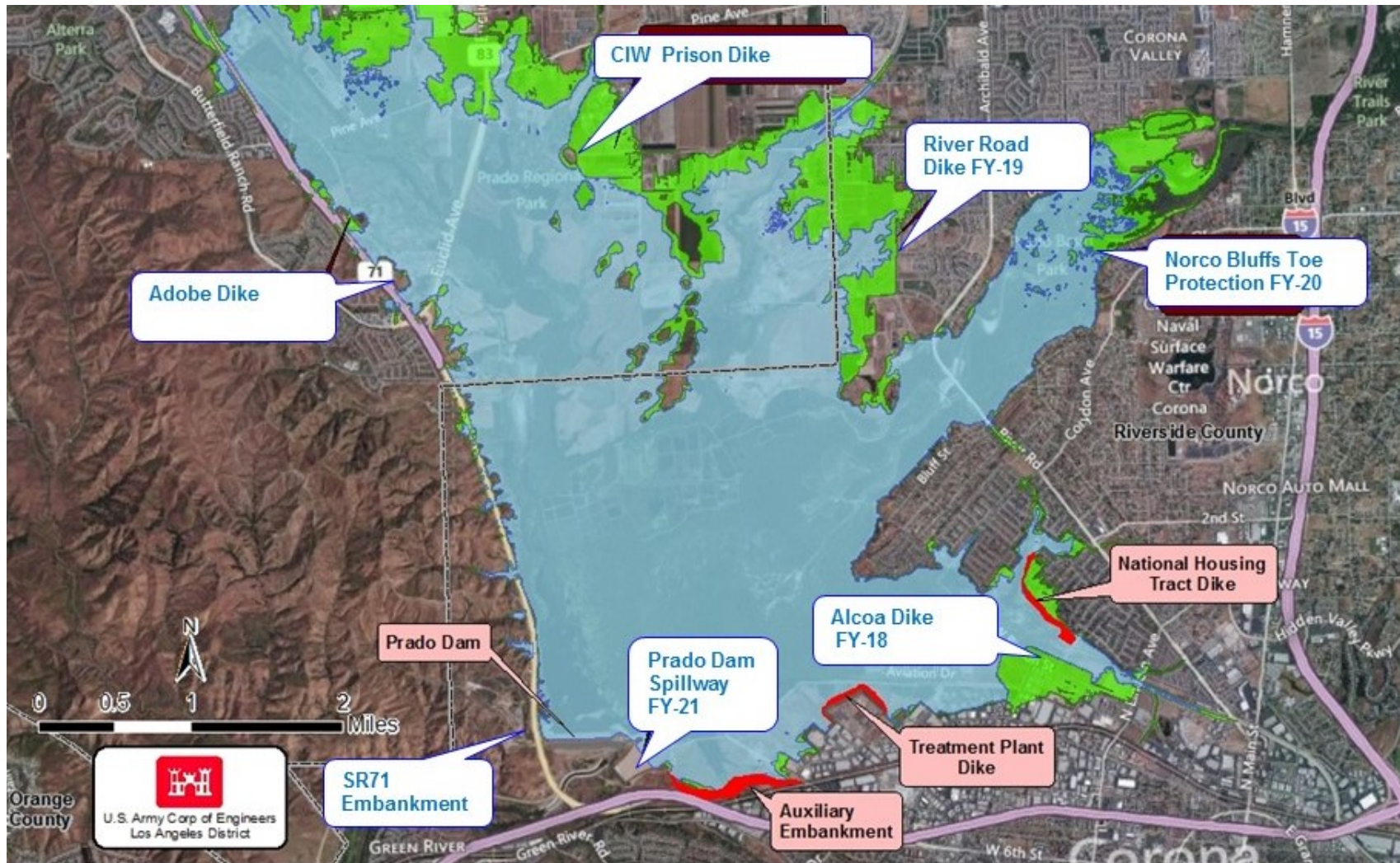


Figure 1-3. Existing and Proposed Perimeter Dikes in Project Vicinity

- Upstream Dam Alternatives Supplemental Environmental Impact Statement, United States Army Corps of Engineers, Los Angeles District, 1985.
- Santa Ana River Mainstem including Santiago Creek. Phase II General Design Memorandum and Supplemental Environmental Impact Statement (GDM/SEIS), United States Army Corps of Engineers, Los Angeles District, 1988.
- Prado Basin and Vicinity, Including Reach 9 and Stabilization of the Bluff Toe at Norco Bluffs SEIS/EIR, United States Army Corps of Engineers, Los Angeles District, 2001.
- Reinitiation of Formal Section 7 Consultation on the Prado Mainstem and Santa Ana River Reach 9 Flood Control Projects and Norco Bluffs Stabilization Project, Orange, Riverside, and San Bernardino Counties (FWS-SB-909.6), 2012.

2. PROPOSED ACTION AND ALTERNATIVES

2.1 OBJECTIVES, PURPOSE AND NEED

The federal objective of water and related land resources project planning is to contribute to national economic development (NED). Such contributions are considered increases in the net value of the national output of goods and services expressed in monetary units. These contributions are to be consistent with the protection of the nation's environment, pursuant to applicable executive orders and other federal planning programs, including the consideration of state and local concerns. The NED objective of the approved Santa Ana River Mainstem Project (SARP) is to provide flood risk management for portions of Orange, Riverside, San Bernardino Counties, while maximizing contributions to National Economic Development.

The Alcoa Dike feature is part of the Prado Basin flood control improvement separable element of the SARP. The feature was analyzed in the 1988 Phase II GDM/SEIS and the design was further revised in the 2001 Final SEIS/EIR. During completion of the feature's Plans and Specifications, the design of the Alcoa Dike embankment (Proposed Action or proposed project) was further refined. The main objective of the Proposed Action would be the same as the originally approved Alcoa Dike embankment, which is to reduce the flood risk and thereby protect the lives and properties of public and privately owned development in the project area.

Statement of Need

Due to the increase in height of Prado Dam to provide additional flood risk reduction, all property located between elevation 556 ft and elevation 566 ft behind the Dam would be within the expanded flood pool of the Basin, subject to inundation (Figure 2-1). Inundation of the basin area requires land acquisition and utility/facility relocations in the absence of a structural feature to prevent inundation of the area. In the subject area, heavily used roadways such as Rincon Road and Auburndale would be subject to removal or relocations in the absence of a structural feature.

Statement of Purpose

The purpose of the Proposed Action is to provide protection from predicted future inundation associated with the planned increased height of the Prado Dam spillway that would otherwise extend up to the 566' pool elevation in the project area. Without this embankment in place, this inundation would require substantial land acquisition and utility/facility relocations.

2.2 COMPARISON OF PREVIOUSLY APPROVED DESIGN AND PROPOSED ACTION

A comparison of the Previously Approved Design and the Proposed Action is shown below in Table 2.2-1.

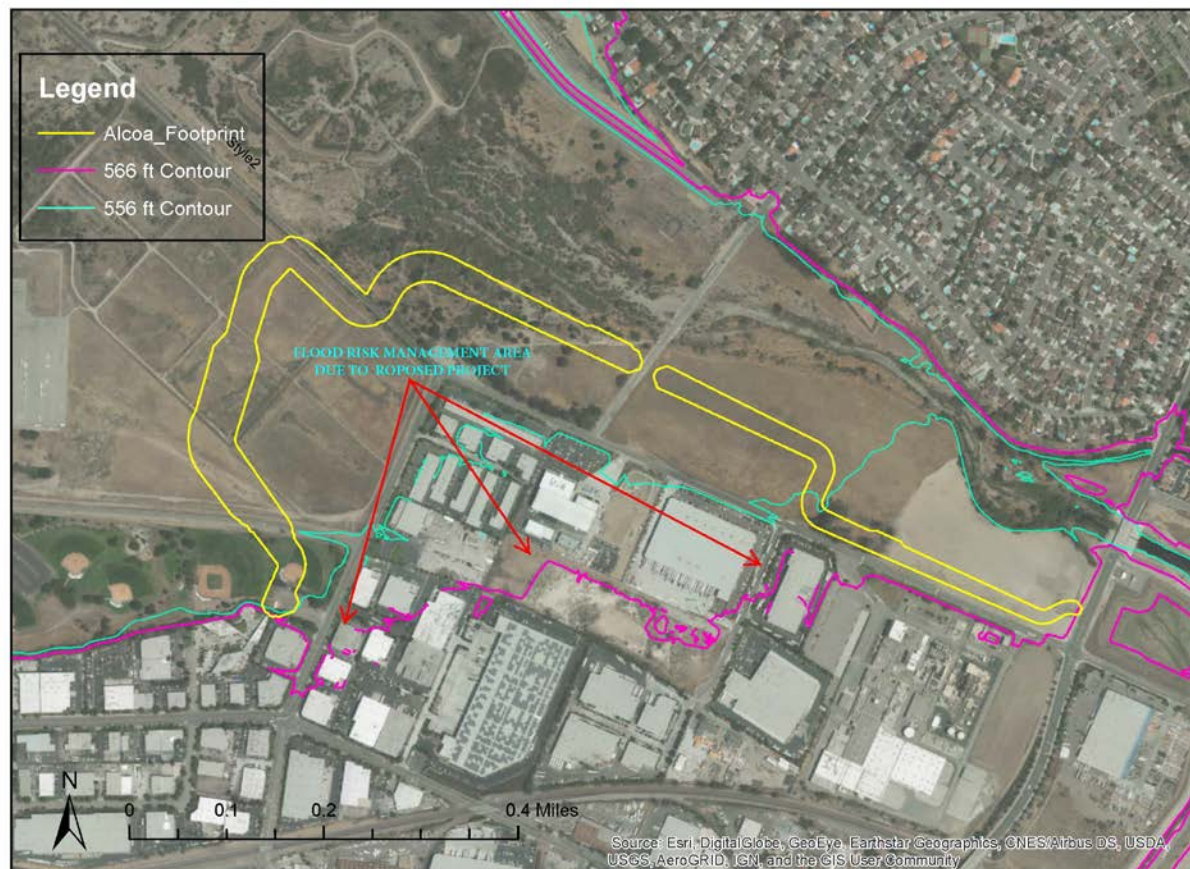


Figure 2-1. Flood Risk Management Areas due to Proposed Project

Table 2.2-1 Comparison of Differences between Previously Approved Design and the Proposed Action

Previously Approved Design	Proposed Action
18 inches of stone over a layer of filter cloth.	15 inches of riprap over 12 inch thick bedding (project feature).
Approximately 5,550 feet of bank protection.	Approximately 7,530 feet of bank protection; minor design changes include height increase of 1.5 ft to 3 ft (project feature).
A ponding area for interior drainage behind the dike located at the northwest corner of the intersection of Rincon Street and Auburndale Street.	Three additional ponding areas (total of four) with a total storage volume of 82 acre-feet for interior drainage behind the dike (project feature).
--	Two 36-inch drainage structures extending through the main dike embankment, two other culverts extending through roadway embankments, a concrete v-ditch and 36 inch drainage pipe to Temescal Creek (project feature).
--	Two 15-foot maintenance access roads - one on each side of the toe of the embankment (project feature).
Raising of Auburndale Road (sponsor road relocation) to match the top elevation of proposed dike.	Horizontal swing floodgate at Auburndale Road and reinforced concrete floodwall on each side of the floodgate (project feature)
--	Realignment of downstream end of the dike westerly on Butterfield Drive, realignment of the upstream end of the dike to extend easterly along Rincon Street between Auburndale Street and Lincoln Avenue (project feature)
--	Raising of Rincon Street to match the elevation of the proposed dike, and road modification to Rincon Street to meet current design standards (project feature)
--	Road realignment of Butterfield Drive (sponsor paid betterment element)

2.3 ALTERNATIVES EVALUATED AND ELIMINATED

No Construction Alternative

The Alcoa Dike embankment as originally designed has already been approved for construction in the 2001 SEIS/EIR and remains required to allow for Prado Dam operation subsequent to the dam height raise. Thus, not constructing this flood control improvement would not meet the project purpose and need. Therefore, it has been removed from consideration and thus not carried forward for further analysis.

2.4 PROJECT ALTERNATIVES (ALTERNATIVES CONSIDERED FOR ENVIRONMENTAL ANALYSIS)

Two alternatives have been carried forward for detailed analysis in this SEA and EIR Addendum. These alternatives are:

- Previously Approved Design Alternative
- Proposed Action

2.4.1 Previously Approved Design Alternative

The Previously Approved Design Alternative is defined as constructing the Alcoa Dike embankment according to the plan presented in the 2001 SEIS/EIR and adopted by the Corps. The proposed dike would reduce flood risk to the infrastructure, and private and public developments located just outside of the existing rights-of-way in the southeastern part of the Prado reservoir. The entire parcel (plus other privately owned development) is located within the proposed expanded Prado Basin reservoir inundation limit at

elevation 566 ft. Studies indicate that it would be more economical to construct a dike between the reservoir and these properties than to acquire these properties for flood control purposes.

The dike would be located on federal, City and county land, and would be adjacent to the existing Smith Avenue and Rincon Street. The alignment of the dike was selected to minimize impacts on existing facilities such as streets, utilities, percolation ponds, and other industrial and commercial development. Nevertheless, the dike would have to cross over Butterfield Drive, Rincon Street, and Auburndale Street. The roadways at those crossings would be reconstructed to match the design parameters of the rest of the dike, including height, depth of footings and required material composition and compaction. Raising the roads to match the height of the dike would require modifications along an extended segment to achieve the gradual increase and decrease in slope/grade required by the Riverside County and City of Corona transportation departments. The dike would be approximately 5,550 feet in length, and its top would vary in elevation between 566.0 and 569.8 in accordance with the freeboard design. The dike would have a top width of 15 feet, and a maximum height of 30 feet above the existing ground surface with an average height of approximately 20 feet. The reservoir side of the slopes would be protected with 18 inches of stone over a layer of filter cloth. A ponding area with a storage volume of 55.5 acre-feet between elevations 544.7 and 550.7, plus a 36-inch culvert with a flap gate at the outlet structure, would be provided for the interior drainage behind the dike.

2.4.2 Proposed Action

The Proposed Action is similar to the previously approved design alternative and associated sponsor real estate actions except for the changes identified in Table 2.2-1 above.

Similar to the previously approved design alternative, the proposed project would be located on federal, City and county land, and would be adjacent to the existing Smith Avenue and Rincon Street. The alignment of the proposed dike was also selected to minimize impacts on existing facilities such as streets, utilities, percolation ponds, and other industrial and commercial development. Nevertheless, the proposed dike would also have to cross over Butterfield Drive, Rincon Street, and Auburndale Street. Design modifications have eliminated the need to reconstruct Auburndale Street via construction of a floodgate, however, Rincon Street will be raised to match the grade of the dike, while Butterfield Drive will be realigned as a sponsor paid betterment feature. The proposed dike would be approximately 7,530 feet in length (Figure 2-2). The reservoir side of the slopes would be protected with 18 inches of stone over three inches of bedding.

Four ponding areas (Figure 2-3), two 36-inch drainage structures extending through the main dike embankment, two culverts extending through roadway embankments, a concrete v-ditch, and 36-inch drainage pipe to Temescal Creek would be provided for interior drainage behind the dike. A single swing floodgate will be installed on Auburndale Street. Temporary detours would be provided as necessary during construction.

Construction vehicles would access the site from Butterfield Drive, Rincon Street, Auburndale Street, Smith Avenue, and Lincoln Avenue. Two 15-foot permanent maintenance access roads would be constructed – one along each side of the toe of the embankment.



Figure 2-2. Project Site Plan

ALCOA DIKE
2. Proposed Action and Alternatives

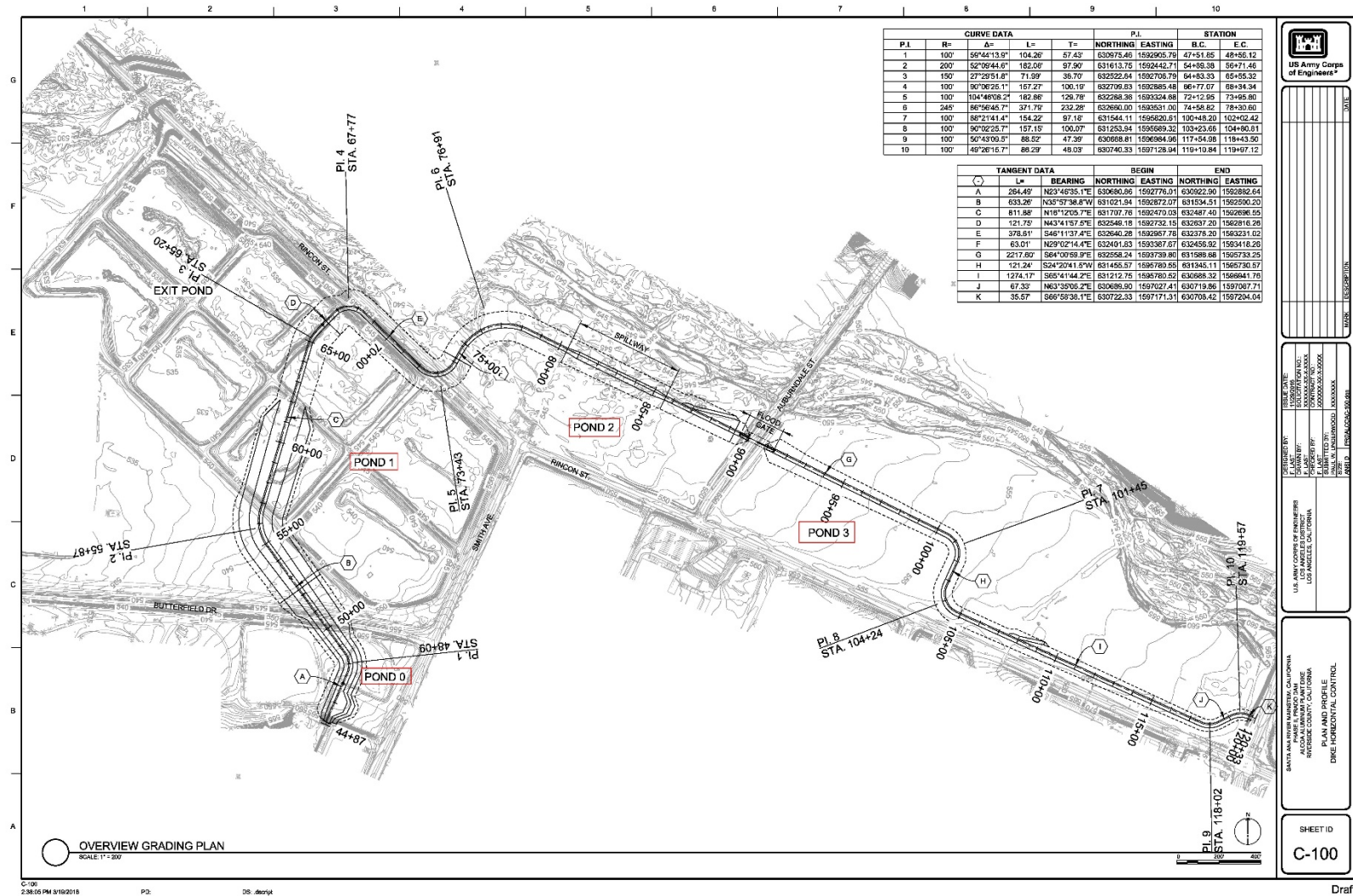


Figure 2-3. Ponding Area Locations

To provide for local drainage, a 36-inch drainage structure will extend through the main dike embankment. Three other culverts will extend through the roadway embankments, and a concrete v-ditch and a 36-inch drainage pipe will drain water toward Temescal Creek.

2.4.2.1 *Staging Areas*

The staging area would be located at the northwest corner of the intersection of Rincon Street and Lincoln Avenue, and would be approximately 4.5 acres in size (Figure 2-2). Additional staging, stockpile and equipment storage locations may be identified within the proposed construction footprint during construction.

2.4.2.2 *Haul Routes*

Haul roads and vehicular access roads would be needed during construction of the proposed embankment. The haul route would be used to bring equipment, stone, fill material, and other construction materials from the borrow site, commercial quarries or from the staging area. The primary haul route to the proposed project site begins at the proposed borrow area located approximately 1.5 miles west of the proposed project site. The route moves from west to east and would utilize existing roadways, similar to that described in the 2001 SEIS (Clearwater Drive [which is not a public road], Butterfield Drive, Smith Ave., Rincon and Auburndale) (Figure 2-2).

At the proposed project site, construction equipment and haul trucks would traverse a 15-foot wide maintenance access road that will extend along the toe of the embankment on both sides.

2.4.2.3 *Disposal Sites*

Construction of the Proposed Action would produce organic, inorganic, and unsuitable construction materials which must be disposed of in the manner and areas specified so that the proposed project site would be restored after completion of construction.

Organic materials, trees, shrubs, and abandoned timber structures, would be disposed of by hauling to a local commercial site. Topsoil containing organic material may not be disposed of at a commercial site, but may be stockpiled and spread on embankment slopes or borrow areas as a part of site restoration. Disposal of these materials by burning or burying at the proposed project site would not be permitted. Inorganic materials would include, but are not limited to, broken concrete, rubble, asphaltic concrete, metal, and other types of construction materials. These materials will also be taken to a commercial landfill.

2.4.2.4 *Source of Material*

Approximately 7,553 feet of stone protection (approximately 40,630 tons of riprap) would be required for the construction of the embankment. Riprap will be imported from a local quarry. For the purposes of this analysis, it is assumed that the nearest quarry would likely be used.

Approximately 231,558 cubic yards (cy) of onsite excavation and approximately 709,103 cy of fill would be required. Therefore, approximately 477,545 cy of fill would be imported from a borrow site located approximately 1.5 miles west of the proposed project site (Figure 1-2).

2.4.2.5 Water Source

The construction contractor will determine and acquire a water source for construction of the proposed project. The most likely source is a city street fire hydrant (City of Corona).

2.4.2.6 Construction Equipment

Construction equipment would likely include a combination of concrete pumpers, water trucks, waste trucks, haul trucks, scrapers, loaders, dozers, cranes, soil compactors, rollers, graders, vegetation chippers, and excavators.

2.4.2.7 Construction Duration and Phasing

Construction is scheduled to commence in September 2018 and last approximately 24 months. It is possible that the project would be built in stages, with multiple start dates and construction periods for various sections of the project depending on land acquisition and utility relocations schedule, environmental windows and weather delays. Construction phasing may result in an extension of the overall project duration beyond winter 2020.

Proposed construction hours would be 7:00 a.m. to 6:00 p.m., Monday through Friday. Occasional overtime work may be required to maintain the construction schedule, but would be in compliance with local noise ordinances.

2.4.2.8 Utilities

The proposed project area is served by utility and service systems located in Riverside County and within the City of Corona. A variety of local purveyors in these areas provide and maintain utility and service system facilities associated with electricity, water, stormwater and wastewater, solid waste, and natural gas. A February 2010 Utility Investigation Report for Alcoa Dike was prepared by AECOM for OC Public Works (aka OCFCD). Any utilities within project limits will either be relocated prior to or during construction (by the utility owner or project sponsor), or protected in place.

2.5 Future Operation and Maintenance

Maintenance, including routine inspections and minor repairs, of the Alcoa Dike embankment and its associated features would be required after construction is completed. The following activities may occur:

- Routine and special inspection and patrol with pickup trucks and sport utility vehicles weekly to daily during the flood season, and weekly to monthly during the non-flood season;
- Mobilizing dump trucks to haul stones and use of hydraulic excavators to place stones along eroded areas of the embankment to protect and reinforce the dike as necessary during flood fight activities;
- Periodic weeding and patching stone and asphalt maintenance road pavement;
- Periodic clearing of debris around drainage structures; and
- Periodic mending of fencing and painting metal gates.

3. AFFECTED ENVIRONMENT

3.1 AIR QUALITY

The Alcoa Dike project (Proposed Project) air quality conditions remain similar to those described in the Corps' 2017 SEA/EIR Addendum, Santa Ana River Mainstem, Prado Dam Basin, Auxillary Embankment and Floodwall Phase 2, Santa Ana River Flood Control Project, Riverside County, California, and the Corps' 2013 California Institution for Women's Dike SEA/EIR Addendum, to EIS/EIR No 583. The Corps's 2001 Prado Basin and vicinity, including Reach 9 and stabilization of the bluff toe at Norco Bluffs Supplemental Final Environmental Impact Statement (SEIS)/Environmental Impact Report (EIR), State Clearinghouse No. 97071087, Riverside, San Bernardino, and Orange Counties, California, is a reference for historical air emission in the proposed project area. These reports are hereby incorporated by reference, as per 40 CFR 1502.21.

The proposed action is entirely within the Prado Flood Control Basin's Temescal Wash drainage area, which is part of the larger Prado Dam Reservoir basin area, and is located in the central part of the South Coast Air Basin (SCAB) of California, an approximate 6,600 square mile (mi²) area encompassing Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino counties. SCAB is bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east.

Air quality in the SCAB is regulated by Federal, state, and regional control authorities, including the U.S. Environmental Protection Agency (EPA); the California Air Resources Board (ARB), which is part of the California Environmental Protection Agency (Cal EPA); the South Coast Air Quality Management District (SCAQMD) and the Southern California Association of Governments (SCAG).

Baseline air quality in the project area can be determined from ambient air quality measurements conducted by the SCAQMD at the Pomona and Rubidoux stations, which are the closest monitoring stations to the Prado Dam Reservoir. While both Federal and state air quality standards for several air pollutants continue to be exceeded, recent data indicates overall improving air quality.

Criteria pollutants and the levels at which they occur in the project area include:

Ozone (O₃) and O₃ precursors [Reactive Organic Gases (ROG)] The project area is within a non-attainment area for state and national ozone standards.

Carbon Monoxide (CO) Prado basin is within an area classified as a non-attainment area for the national and state carbon monoxide standards. Riverside and San Bernardino Counties attain Federal CO standards.

Nitrogen Dioxide (NO₂) The state nitrogen dioxide standards were exceeded only once in 1993 and the Federal standards were not exceeded on any occasion. However, until the SCAQMD requests a re-designation, the Prado basin area is still in non-attainment of the Federal nitrogen dioxide air quality standard. The area surrounding Prado basin is designated as a non-attainment area for both state and national nitrogen dioxide standards.

Suspended Particulate Matter (PM) 10 and 2.5 PM₁₀ and PM_{2.5} levels regularly exceed the national standard in Los Angeles, Riverside, San Bernardino, and Orange counties. The more stringent state PM₁₀ standard is exceeded in all four counties. The area surrounding Prado basin is designated as non-attainment for PM₁₀ and PM_{2.5} standards.

Sulfur Dioxide (SO₂) and Lead (Pb) Sulfur dioxide and lead levels in areas surrounding Prado basin are below national and state standards. The entire Prado basin region is in attainment for these pollutants.

Greenhouse Gases Greenhouse gases (GHGs) are gases that trap heat in the atmosphere. These gases are emitted as a result of natural processes and human activities. The accumulation of GHGs in the atmosphere regulates Earth's temperature and scientific evidence indicates a trend of increasing global temperature over the past century due to an increase in GHGs.

It is the policy of the Corps to integrate GHG and climate change adaptation planning and actions into its missions, operations, programs, and projects. The Corps shall continue undertaking its GHG climate change adaptation planning and shall implement the results of that planning using the best available – and actionable – climate science and climate change information. The successful implementation of this Corps' adaptation policy will help enhance the resilience of the built and natural water-resource infrastructure the Corps manages and reduce its potential vulnerabilities to the effects of climate change and variability.

3.2 BIOLOGICAL RESOURCES

Biological resources within the vicinity of Alcoa Dike and other SARMP features have already been described in previous documents, including the 1988 GDM/SEIS, 2001 SEIS/EIR, and a 2012 Biological Opinion (BO) amendment. Any changes in the baseline conditions or additional information on plant or wildlife species in the Proposed Project area are discussed in this section to provide an up-to-date inventory for purposes of impact analysis. This information is based on recent surveys, literature review, and coordination with regulatory agencies and local experts.

3.2.0 General Setting

The project region is located within the Santa Ana River (SAR) watershed in the western-most portion of Riverside County. This area includes lands contiguous to the SAR both up and downstream of Prado Dam. Natural conditions in this region are generally dictated by climate, which is typical of southern California inland areas. The Mediterranean climate of the SAR watershed is characterized by typical hot, dry summers and relatively cooler, wetter winters. The annual precipitation in the region averages approximately eighteen inches per year. Most precipitation occurs between November and March with little to no rainfall during the summer months. Prevailing temperatures in the watershed vary depending on location, elevation, and topography. These conditions all contribute to the unique composition of vegetation communities and wildlife species occurring in the region. On a local scale, the presence of the Dam, ongoing development in the region, and various other anthropogenic features have also affected the location and distribution of biological resources in this portion of the watershed.

The SAR watershed covers over 2,650 square miles of wildly varying terrain, which includes parts of San Bernardino, Riverside, and Orange Counties. With a mainstem over 100 miles long and consisting of over fifty contributing tributaries, the SAR is the largest stream system in southern California. The headwaters for the SAR and its tributaries originate in the San Gabriel and San Bernardino Mountains to the north and the San Geronimo and San Jacinto Mountains to the east.

More specifically, the project area is located in the SAR watershed within the City of Corona and adjacent to the Corona Municipal Airport, approximately 2.25 miles upstream of the Prado Dam embankment. The project area lies within the County of Riverside. The project area is bounded by

residential areas to the north, Butterfield Park and industrial areas to the south, residential and industrial areas to the east, and the Prado Basin and Corona Municipal Airport to the west.

Although the project area consists of a diverse assemblage of habitats that are vital to a variety of biological resources, the area has also been subjected to several episodes of human disturbance. These include urban development, airport activities/traffic, water diversion, conveyance (pipelines and canals), spreading, and flood control activities.

3.2.1 Existing Conditions

Corps biologists and SAWA biologists conducted a site survey of the Proposed Project area and its vicinity to document existing biological resources and sensitive species in summer of 2017. From information gathered during these surveys and a review of existing literature. This section summarizes the results of this Biological Resources survey (USACE, 2017) which is described in the sections provided in this SEIS/EIR Addendum below.

Prior to conducting fieldwork, California Department of Fish and Wildlife (CDFW), U.S. Fish and Wildlife Service (USFWS), and California Native Plant Society (CNPS) sensitive species occurrence databases were reviewed for the project area. These sources are cited in relevant sections as discussed below.

3.2.2 Vegetation

A thorough description and analysis of vegetation communities throughout the Prado Basin was provided in the 2001 SEIS/EIR. In order to further refine the description of the most current conditions in the proposed project area, supplemental surveys were conducted in July 2017 to map vegetation and document current biological conditions in the project area. While the previous mapping effort was focused on the regionally broader SARP project area, the most recent mapping effort was restricted to the area of potential effects for the Proposed Project. The results of the recent mapping efforts are primarily consistent with previous vegetation maps created through the region. Upon completion of the recent vegetation mapping surveys, the total area (in acres) of each plant community identified within the proposed project area was calculated (Table 3.2-1; Figure 3.2-1). For consistency the descriptions of the plant communities in the project area follow those used in the 2001 SEIS/EIR. Each plant community has been referenced to the Manual of California Vegetation by Sawyer et al. (2009), Preliminary Descriptions of the Terrestrial Natural Communities of California by Holland (1986) and to particular applicable sections of A Guide to Wildlife Habitats of California (1988) as applicable.

Table 3.2-1. Existing Cover Types within the Project Area

Cover Types	Total Acres	Percentage of Project Area (%)
Vegetated		
Native Riparian (Mulefat Scrub)	32.5	18.6
Non-native Upland (Non-native grassland and woodland)	185.5	70.3
Native Upland	12.6	4.4
Developed	15.8	6.7
TOTAL	246.4	100.0

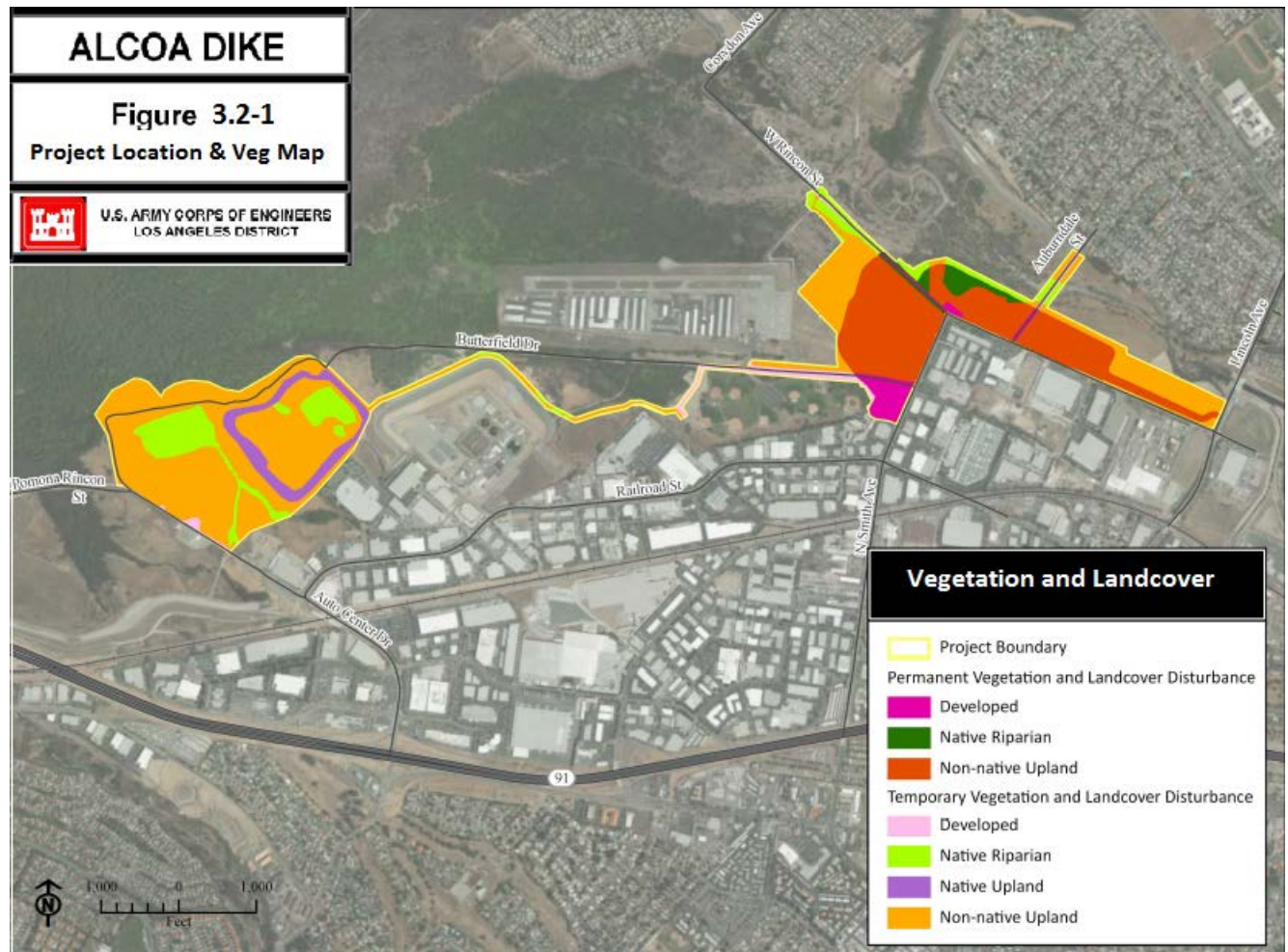


Figure 3.2-1. Vegetation Communities

The current mapping effort was done using ArcGIS (Version 10.3.1) and aerial photography from March 2016. The minimum mapping unit was approximately 0.25 acre. Because most vegetation types intergrade (i.e., slowly transition from one type to another) in a natural setting there are often no distinct boundaries between various communities. In these cases, the mapped boundary was identified using the best professional judgment of the biologist.

A total of four broad habitat categories were identified within the proposed project area, including native riparian that correlates to the California Department of Fish and Wildlife (CDFW) classifications of southern riparian scrub. This community is tracked and considered sensitive by the CDFW (CDFW, 2016). Areas that have been landscaped, such as, public parks, baseball fields or roadside plantings have been defined as developed in this document. Areas that are currently developed as roads or commercial businesses have also been defined as developed.

Table 3.2-1 lists the cover types identified in the project area during the time of surveys. A detailed description of the various plant communities is also presented in the following paragraphs. A complete list of the plant species identified in the project area is presented in Table 3.2-2. Non-native species indicated by asterisk, special status species indicated by two asterisks. This list includes only species

observed on the site. Others may have been overlooked or unidentifiable due to the season and/or timing of surveys. Plants were identified using keys, descriptions, and illustrations in Baldwin et al. (2012) and other regional references. Taxonomy and nomenclature generally follow Baldwin et al.

Native Riparian (Mulefat Scrub)

The riparian vegetation in the project area is dominated by mulefat (*Baccharis salicifolia*), and is best classified as mulefat scrub due to the abundance of this species. Other riparian species observed in this community include a limited amount of Fremont cottonwood (*Populus fremontii*), arroyo willow (*Salix lasiolepis*), and black willow (*S. goodingii*). In the project area these trees are scattered and occur in relatively low densities. In addition, one of the largest patches of willows is located under a transmission line and appears to be subject to routine vegetation management activities. This prevents the formation of functional riparian woodland habitat. Giant reed (*Arundo donax*) is also a minor component of this community. This vegetation was not delineated as a unique community because it did not meet the minimum mapping unit of 0.25 acres. Riparian (mulefat) scrub matches descriptions of mulefat thickets by Sawyer et al. (2009), valley foothill riparian by Grenfell (1988) and mulefat scrub as described by Holland (1986). This vegetation provides important habitat for many wildlife species including numerous sensitive birds. Some of these include least Bell's vireo, yellow warbler, yellow-breasted chat, and southwestern willow flycatcher.

A small area that was previously mapped as aquatic has been included under native riparian vegetation. The previously mapped aquatic areas have water present during storms and for a short duration after storms. For most of the year they are dry and provide no aquatic habitat.

Non-native Upland (Non-native grassland and woodland)

Several extensive stands of non-native grasslands and woodlands occur in the project area. The woodlands are dominated by invasive non-native, trees including Eucalyptus (*Eucalyptus* sp.), Chinese elm (*Ulmus parviflora*), Peruvian pepper trees (*Schinus molle*), and black locust (*Robinia pseudoacacia*). Most of these trees are large and may have been planted to act as windbreaks for historic agricultural practices. These trees are considered highly invasive and can displace native vegetation. In the project area these trees have expanded into the surrounding areas. This vegetation best matches the description of Eucalyptus in Pearson (1988) and is largely untreated in other publications on California vegetation.

The grasslands are dominated by weedy species such as brome grasses (*Bromus* spp.), barley (*Hordeum* spp.), and fescue (*Vulpia myuros*). Other components documented in this community include horehound (*Marrubium vulgare*), filaree (*Erodium* spp.), and doveweed (*Eremocarpus setigerus*). Nearly all of the species found in this community are early successional species that seem to withstand periodic disturbance events. In the project area this vegetation is found in primarily two locations; the first being the large bench adjacent to Temescal Wash and the second at the existing percolation ponds/basins just west of Smith Ave. The large bench along Temescal Wash shows signs of past agricultural and development use. This likely explains why this vegetation is flourishing in this area. The series of basins just west of Smith Ave. are frequently mowed and with the exception of the two northernmost basins that

support riparian vegetation and are Corps mitigation sites, do not appear to regularly hold water for extended periods of time.

These non-native grasslands match description of annual brome grasslands by Sawyer et al. (2009), non-native grassland as described by Holland (1986) and annual grasslands as described by Kie (1988).

Developed

This cover type represents developed areas within the project site and also areas that have been landscaped for aesthetic and recreational value. This includes the area near the South-western end of the project that is currently developed as park land and baseball fields. The vegetation within this area is largely comprised of turf grasses with scattered trees such as Peruvian pepper and Brazilian pepper trees (*S. terebinthifolius*). It also includes all the business developed along the project site.

Table 3.2-2. Plant Species Observed Within the Project Area

Latin Name	Common Name
VASCULAR PLANTS	
AMARANTHACEAE	AMARANTH FAMILY
<i>Amaranthus blitoides</i>	Prostrate pigweed
ANACARDIACEAE	CASHEW FAMILY
<i>Malosma laurina</i> (<i>Rhus laurina</i>)	Laurel sumac
* <i>Schinus molle</i>	Peruvian ("California") pepper
* <i>Schinus terebinthifolius</i>	Brazilian pepper tree
APIACEAE	CELERY FAMILY
* <i>Apium graveolens</i>	Wild celery
* <i>Conium maculatum</i>	Poison hemlock
* <i>Foeniculum vulgare</i>	Fennel
APOCYNACEAE	DOGBANE FAMILY
* <i>Nerium oleander</i>	Ornamental oleander
ARECACEAE	PALM FAMILY
* <i>Phoenix dactylifera</i>	Date palm
* <i>Washingtonia robusta</i>	Washington fan palm
ASTERACEAE	ASTER FAMILY
<i>Ambrosia acanthicarpa</i>	Annual sandbur
<i>Ambrosia psilostachya</i>	Western ragweed
<i>Artemisia californica</i>	California sagebrush
<i>Artemisia douglasiana</i>	Douglas mugwort
<i>Artemisia dracunculoides</i>	Tarragon
<i>Aster subulatus</i>	Annual marsh aster
<i>Baccharis salicifolia</i> (<i>B. glutinosa</i>)	Mulefat
<i>Bidens laevis</i>	Bur-marigold
* <i>Carduus pycnocephalus</i>	Italian thistle
* <i>Centaurea melitensis</i>	Tocalote
* <i>Cirsium vulgare</i>	Bull thistle
* <i>Cnicus benedictus</i>	Blessed thistle
* <i>Conyza bonariensis</i>	Flax-leaved horseweed
<i>Conyza canadensis</i>	Horseweed

Table 3.2-2. Plant Species Observed Within the Project Area

Latin Name	Common Name
<i>Euthamia occidentalis</i>	Western goldenrod
* <i>Filago gallica</i>	Narrow-leaved filago
<i>Helianthus annuus</i>	Annual sunflower
<i>Heterotheca grandiflora</i>	Telegraph weed
<i>Isocoma menziesii</i>	Coast goldenbush
* <i>Lactuca serriola</i>	Prickly lettuce
<i>Malacothrix saxatilis</i>	Quillwort
* <i>Pulicaria paludosa</i> (<i>P. hispanica</i>)	Spanish sunflower
* <i>Silybum marianum</i>	Milk thistle
* <i>Sonchus asper</i>	Prickly sow-thistle
* <i>Sonchus oleraceus</i>	Common sow thistle
<i>Xanthium strumarium</i>	Cocklebur
BORAGINACEAE	BORAGE FAMILY
<i>Amsinckia menziesii</i>	Rancher's fiddleneck
<i>Heliotropium curassavicum</i>	Salt heliotrope
BRASSICACEAE	MUSTARD FAMILY
* <i>Brassica geniculata</i> (<i>Hirschfeldia incana</i>)	— Short-pod mustard
* <i>Lepidium latifolium</i>	Broad-leaved peppergrass
** <i>Lepidium virginicum</i> var. <i>robinsonii</i>	Robinson's pepper grass
* <i>Raphanus sativus</i>	Wild radish
* <i>Sisymbrium irio</i>	London rocket
* <i>Sisymbrium officinale</i>	Hedge-mustard
CAPRIFOLIACEAE	HONEYSUCKLE FAMILY
<i>Sambucus nigra</i> ssp. <i>cerulea</i>	Blue elderberry
CHENOPODIACEAE	GOOSEFOOT FAMILY
* <i>Chenopodium album</i>	Common goosefoot
* <i>Chenopodium murale</i>	Nettle-leaved goosefoot
* <i>Salsola tragus</i>	Russian thistle, tumbleweed
CUCURBITACEAE	CUCUMBER FAMILY
<i>Cucurbita foetidissima</i>	Calabazilla
<i>Marah macrocarpa</i>	Wild cucumber
CYPERACEAE	SEDGE FAMILY
* <i>Cyperus difformis</i>	Variable flatsedge
<i>Cyperus eragrostis</i>	Tall umbrella sedge
<i>Schoenoplectus americanus</i>	Olney's three-square bulrush
EUPHORBIACEAE	SPURGE FAMILY
<i>Chamaesyce maculata</i>	Spotted spurge
<i>Chamaesyce serpentyfolia</i>	Time leafed spurge
<i>Eremocarpus setiger</i>	Doveweed
* <i>Ricinus communis</i>	Castor bean
FABACEAE	PEA FAMILY
<i>Lupinus succulentus</i>	Arroyo lupine
* <i>Medicago polymorpha</i>	Bur-clover
* <i>Melilotus alba</i>	White sweet-clover
* <i>Melilotus indica</i>	Yellow sweet clover
* <i>Robinia pseudoacacia</i>	Black locust

Table 3.2-2. Plant Species Observed Within the Project Area

<i>Latin Name</i>	<i>Common Name</i>
GERANIACEAE	GERANIUM FAMILY
* <i>Erodium cicutarium</i>	Red-stemmed filaree
LAMIACEAE	MINT FAMILY
* <i>Lamium amplexicaule</i>	Henbit
* <i>Marrubium vulgare</i>	Horehound
LEMNACEAE	DUCKWEED FAMILY
<i>Lemna</i> sp.	Unidentified duckweed
MALVACEAE	MALLOW FAMILY
* <i>Malva parviflora</i>	Cheeseweed
MYRTACEAE	EUCALYPTUS FAMILY
* <i>Eucalyptus globulus</i>	Blue gum
* <i>Eucalyptus citriodora</i>	Lemon scented gum
* <i>Eucalyptus sideroxylon</i>	Red ironbark
ONAGRACEAE	EVENING PRIMROSE FAMILY
<i>Epilobium ciliatum</i>	Willow-herb
POACEAE	GRASS FAMILY
* <i>Agrostis viridis</i> (A. <i>semiverticillata</i>)	Water bentgrass
* <i>Arundo donax</i>	Giant reed
* <i>Avena fatua</i>	Wild oat
* <i>Bromus catharticus</i>	Rescue grass
* <i>Bromus diandrus</i>	Ripgut brome
* <i>Bromus hordeaceus</i>	Soft chess
* <i>Bromus madritensis</i> ssp. <i>rubens</i>	Red brome
* <i>Chloris virgata</i>	Feather finger grass
* <i>Cynodon dactylon</i>	Bermuda grass
* <i>Echinochloa colona</i>	June rice grass
* <i>Hordeum murinum</i>	Hare barley
<i>Leptochloa uninerva</i>	Spangletop
* <i>Lolium perenne</i> ssp. <i>multiflorum</i>	Awned Italian ryegrass
* <i>Paspalum dilatatum</i>	Dallis grass
* <i>Piptatherum miliaceum</i>	Smilo grass
* <i>Polypogon monspeliensis</i>	Rabbitfoot grass
* <i>Schismus barbatus</i>	Mediterranean schismus
* <i>Setaria gracilis</i>	Bristlegrass
* <i>Vulpia myuros</i>	Foxtail fescue
POLYGONACEAE	BUCKWHEAT FAMILY
<i>Eriogonum fasciculatum</i>	California buckwheat
* <i>Polygonum arenastrum</i>	Common knotweed
<i>Polygonum lapathifolium</i>	Willow smartweed
* <i>Rumex acetosella</i>	Sheep sorrel
* <i>Rumex crispus</i>	Curly dock
PRIMULACEAE	PRIMROSE FAMILY
* <i>Anagalis arvensis</i>	Scarlet pimpernel
SALICACEAE	WILLOW FAMILY
<i>Populus fremontii</i>	Fremont cottonwood
<i>Salix exigua</i>	Sandbar willow
<i>Salix goodingii</i>	Black willow

Table 3.2-2. Plant Species Observed Within the Project Area

<i>Latin Name</i>	<i>Common Name</i>
<i>Salix lasiolepis</i>	Arroyo willow
SCROPHULARIACEAE	SNAPDRAGON FAMILY
<i>Mimulus guttatus</i>	Seep monkeyflower
<i>Veronica peregrina</i>	Mexican speedwell
SIMAROUBACEAE	QUASSIA FAMILY
* <i>Ailanthus altissima</i>	Tree of heaven
SOLANACEAE	NIGHTSHADE FAMILY
<i>Datura wrightii</i>	Jimsonweed
* <i>Nicotiana glauca</i>	Tree tobacco
TAMARICACEAE	TAMARISK FAMILY
* <i>Tamarix ramosissima</i>	Mediterranean tamarisk
TYPHACEAE	CATTAIL FAMILY
<i>Typha latifolia</i>	Broad-leaved cattail
ULMACEAE	ELM FAMILY
* <i>Ulmus parviflora</i>	Chinese elm
URTICACEAE	NETTLE FAMILY
<i>Urtica dioica</i> ssp. <i>holosericea</i>	Stinging nettle
* <i>Urtica urens</i>	Dwarf nettle

3.2.2.2 *Special-Status Plant Species*

Special-status plants included in this SEA/EIR Addendum include those species listed as threatened or endangered under the federal or California Endangered Species Acts, species proposed for listing, those that are included in the Western Riverside Multiple Species Habitat Conservation Plan (MSHCP), and other species which have been identified by the United States Fish and Wildlife Service (USFWS), CDFW, or have been assigned by local jurisdictions as unique or rare and which have the potential to occur within the study area. Each of these species was assessed for its potential to occur within the proposed project area.

Special-status plant species habitat assessment surveys were conducted in January 2018 and previously in Oct/Nov 2009, Nov 2011, and Feb 2012. Surveys were conducted using random meandering and intuitive controlled transects to focus in on areas that contained suitable habitat for special-status plants (Nelson, 1987; CDFW, 2000). Surveys were floristic in nature but were not conducted during the optimal survey period for some of the special-status species that may occur in the region. No plants federally or State listed as threatened or endangered were identified during any of the surveys or are expected to occur in the project area due to the habitat present. Robinson's pepper-grass (*Lepidium virginicum* var. *robinsonii*) is the only special-status plant species identified in the project area during previous surveys. Several other special-status plants have a potential to be present based on suitable habitat conditions and the known distributions of these species. These include chaparral sand verbena (*Abronia villosa* var. *aurita*), paniculate tarplant (*Deinandra paniculata*) southern California black walnut (*Juglans californica* var. *californica*), white-rabbit tobacco (*Pseudognaphalium leucocephalum*) and Coulter's Matilija poppy (*Romneya coulteri*).

Table 3.2.3 lists all plant species documented in the literature or listed in the California Natural Diversity Database (CNDDB) for United States Geological Service (USGS) quads encompassing the proposed

project area (CDFW, 2017). Only those species known to be present or those that are federally or state listed or covered under the MSHCP and with a potential to be present within the project area are discussed further in this document.

Table 3.2.3 Special Status Plants and their Probability to Occur Within the Project Area

Scientific Name	Common Name	Conservation Status	Habitat and Distribution	Flower season	Occurrence Potential
<i>Abronia villosa</i> var. <i>aurita</i>	Chaparral sand verben	Fed: none Calif: S 2.1 MSHCP: none CRPR: 1B.1	Perennial herb; sand, mostly alluvial fans and benches below about 5000 ft. elev.; San Jacinto Mtns., Inland Empire, adj. Colorado Des., Orange & San Diego cos.	Feb - Jul	Moderate. (see Section 3.2.2.3 below)
<i>Allium marvinii</i>	Yucaipa onion	Fed: none Calif: S1.1 MSHCP: none CRPR: 1B.1	Bulb; clay openings in chaparral; about 2500 – 3,500 ft. elev.	Apr - May	Not Likely to Occur. (no suitable habitat; outside elevation range)
<i>Allium munzii</i>	Munz's onion	Fed: END Calif: THR, S1.1 MSHCP: covered CRPR: 1B.1	Bulb; upland clay soils, gen. in shrublands and woodlands; endemic to W Riv Co, about 1000 - 3500 ft. elev	Mar - May	Not Likely to Occur. (no suitable habitat; outside elevation range)
<i>Ambrosia pumila</i>	San Diego ambrosia	Fed: END Calif: S1.1 MSHCP: covered CRPR: 1B.1	Perennial herb; clay soils, sometimes in or around vernal pools, grasslands or openings in shrublands; sea level to about 1400 ft. elev.; SW Riv Co (Murieta and Lk Elsinore areas), San Diego Co, Baja Calif	Jun - Sep	Not Likely to Occur. (no suitable habitat)
<i>Astragalus brauntonii</i>	Braunton's milk vetch	Fed: END Calif: S2.1 MSHCP none CRPR: 1B.1	Subshrub or perennial herb; scattered locns in Ventura, LA, & Orange cos.; foothills below about 2100 ft. elev.; chaparral, often on carbonate soils; often follows fire or soil disturbance	Feb - June	Not Likely to Occur. (no suitable habitat)
<i>Atriplex coronata</i> var. <i>notatior</i>	San Jacinto Valley crowscale	Fed: END Calif: S1.1 MSHCP: covered CRPR: 1B.1	Annual herb; playas, valley and foothill grassland, vernal pools; alkaline soils; mesic areas; about 500 – 1500 ft. elev.	Apr - Aug	Not Likely to Occur. (no suitable habitat)
<i>Atriplex coulteri</i>	Coulter's saltbush	Fed: none Calif: S2.2 MSHCP: none CRPR: 1B.2	Perennial herb; coastal dunes, bluffs, alkaline flats; coastal S Calif and Baja Calif, inland to Encinitas area; sea level to about 1500 ft. elev.	Mar - Aug	Not Likely to Occur. (no suitable habitat)
<i>Baccharis malibuensis</i>	Malibu baccharis	Fed: none Calif: S1.1 MSHCP: none CRPR: 1B.1	Shrub; shrublands and woodlands; only known locations are in Malibu and Point Dume areas (LA Co) and Fremont Cyn (Orange Co); about 500 - 1000 ft. elev.	Aug	Not Likely to Occur. (no suitable habitat; outside known distribution)

Table 3.2.3 Special Status Plants and their Probability to Occur Within the Project Area

Scientific Name	Common Name	Conservation Status	Habitat and Distribution	Flower season	Occurrence Potential
<i>Berberis nevini</i>	Nevin's barberry	Fed: END Calif: END, S2.2 MSHCP: covered CRPR: 1B.1	Evergreen shrub; chaparral, cismontane woodland, coastal scrub, riparian scrub; sandy or gravelly soils; about 900 – 2,700 ft. elev.	Mar - Jun	Not Likely to Occur. (no suitable habitat)
<i>Brodiaea filifolia</i>	Thread-leaved brodiaea	Fed: END Calif: END, S2.1 MSHCP: covered CRPR: 1B.1	Bulb; chaparral, cismontane woodland, coastal scrub, playas, valley and foothill grassland, vernal pools; often clay soils; about 80 – 4000 ft. elev.	Mar - Jun	Not Likely to Occur. (no suitable habitat)
<i>Calochortus plummerae</i>	Plummer's mariposa lily	Fed: none Calif: S3.2 MSHCP: covered CRPR: 4.2	Bulb; shrublands, woodlands, lower pine forests; mountains, foothills, and valleys; Ventura to Orange Cos., inland to Riverside and San Bernardino Cos.; about 300-5600 ft. elev.	May - Jul	Not Likely to Occur. (no suitable habitat)
<i>Calochortus weedii</i> var. <i>intermedius</i>	Weed's mariposa lily	Fed: none Calif: S2.2 MSHCP: covered CRPR: 1B.2	Perennial herb; shrublands, grassland, various soils, about 600 - 2800 ft. elev.; coastal southern Calif., inland to western Riverside Co.	Jun - Aug	Not Likely to Occur. (no suitable habitat)
<i>Ceanothus ophioides</i>	Vail Lake ceanothus	Fed: THR Calif: END, S1.1 MSHCP: covered CRPR: 1B.1	Evergreen shrub; chaparral; about 1900 – 3500 ft. elev.	Feb – Mar	Not Likely to Occur. (no suitable habitat; outside elevation range)
<i>Chorizanthe parryi</i> var. <i>fernandina</i>	San Fernando Valley spineflower	Fed: Candidate Calif: END, S1.1 CRPR: 1B.1 MSHCP: none	Annual herb; coastal or desert shrublands; historically from San Fernando Valley, adjacent foothills, and coastal Orange Co.; now known only in E Ventura & W LA Cos; about 500 – 4000 ft. elev.	Apr - Jun	Not Likely to Occur. (no suitable habitat)
<i>Chorizanthe parryi</i> var. <i>parryi</i>	Parry's spineflower	Fed: none Calif: S2 CRPR: 1B.1 MSHCP: covered	Annual herb; coastal scrub, chaparral, and native grasslands; about 1000 – 3000 feet elev.	Apr - Jun	Not Likely to Occur. (no suitable habitat)
<i>Chorizanthe polygonoides</i> var. <i>longispina</i>	Long-spined spineflower	Fed: none Calif: S3 CRPR: 1B.2 MSHCP: covered	Annual herb; coastal scrub, chaparral, and native grasslands on heavy soils; 100 – 4500 feet elev.	Apr - Jul	Not Likely to Occur. (no suitable habitat or substrate)
<i>Deinandra mohavensis</i> (<i>Hemizonia mohavensis</i>)	Mojave tarplant	Fed: none Calif: END, S2.3 MSHCP: covered CRPR: 1B.3	Annual herb; chaparral, coastal scrub, riparian scrub; mesic areas; about 2100 – 5250 ft. elev.	Jun - Oct	Not Likely to Occur. (outside elevation and geographic range)
<i>Deinandra paniculata</i> (<i>Hemizonia paniculata</i>)	Paniculate tarplant	Fed: none Calif: S3.2 MSHCP: none CRPR: 4.2	Annual herb; coastal scrub, vernal pools, and grasslands about 50 – 3000 feet elev.	Apr - Nov	High. (see text below)

Table 3.2.3 Special Status Plants and their Probability to Occur Within the Project Area

Scientific Name	Common Name	Conservation Status	Habitat and Distribution	Flower season	Occurrence Potential
<i>Dodecahema leptoceras</i>	Slender-horned spineflower	Fed: END Calif: END, S1 MSHCP: covered CRPR: 1B.1	Annual herb; mature chaparral, cismontane woodland, coastal scrub; about 650 – 2500 feet elev.	Apr - Jun	Not Likely to Occur. (no suitable habitat)
<i>Dudleya multicaulis</i>	Many-stemmed dudleya	Fed: none Calif: S2.1 MSHCP: covered CRPR: 1B.2	Perennial herb; heavy soils or sandstone outcrops; grassland or shrubland below about 2600 ft. elev.; LA to SD Co, inland to San Gabriel Mtn foothills and W Riv Co	May - Jun	Not Likely to Occur. (no suitable habitat)
<i>Eriastrum densifolium</i> ssp. <i>sanctorum</i>	Santa Ana River woollystar	Fed: END Calif: END, S1.1 MSHCP: covered CRPR: 1B.1	Subshrub; alluvial fans and plains; endemic to Santa Ana River watershed (mainly San Bern. Co. but rarely in Riverside & Orange cos.), below about 2000 ft. elev.	May - Sept.	Not Likely to Occur. (no suitable habitat)
<i>Eryngium aritatum</i> var. <i>parishii</i>	San Diego button-celery	Fed: END Calif: END, S2.1 MSHCP: covered CRPR: 1B.1	Annual/perennial herb; coastal scrub, valley and foothill grassland, vernal pools; mesic areas; about 65 – 2050 ft. elev.	Apr - Jun	Not Likely to Occur. (outside known distribution)
<i>Juglans californica</i> var. <i>californica</i>	So. California black walnut	Fed: none Calif: S3.2 MSHCP: covered CRPR: 4.2	Tree or large shrub; woodland, coastal sage scrub, chaparral, below about 3000 ft. elev.; Ventura, LA, Orange, San Bernardino cos.	Can be IDd all year	High. (see Section 3.2.2.3 below)
<i>Lepidium virginicum</i> var. <i>robinsonii</i>	Robinson's pepper-grass	Fed: none Calif: S 2.2 MSHCP: none CRPR: 1B.2	Ephemeral spring annual; shrublands; sea level to about 2900 ft. elev.; LA Co, most Channel Islands, inland to W Riv & San Bern cos, S to Baja Calif	Jan - Jul	Present. ((see Section 3.2.2.3 below)
<i>Limnanthes gracilis</i> ssp. <i>parishii</i>	Parish's meadowfoam	Fed: none Calif: END, S2.2 MSHCP: covered CRPR: 1B.2	Annual herb; lower montane coniferous forest, meadows and seeps, vernal pools; about 1970 – 6560 ft. elev.	Apr - Jun	Not Likely to Occur. (no suitable habitat; outside elevation range)
<i>Navarretia fossalis</i>	Spreading navarretia	Fed: THR Calif: S1 MSHCP: covered CRPR: 1B.1	Annual herb; chenopod scrub, marshes and swamps, playas, vernal pools; about 100 – 4265 ft. elev.	Apr - Jun	Not Likely to Occur. (no suitable habitat)
<i>Orcuttia californica</i>	California Orcutt grass	Fed: END Calif: END, S2.1 MSHCP: covered CRPR: 1B.1	Annual herb; vernal pools, heavy soils; about 50 – 2165 ft. elev.	Apr - Aug	Not Likely to Occur. (no suitable habitat)

Table 3.2.3 Special Status Plants and their Probability to Occur Within the Project Area

Scientific Name	Common Name	Conservation Status	Habitat and Distribution	Flower season	Occurrence Potential
<i>Phacelia stellaris</i>	Brand's phacelia	Fed: Candidate Calif: S1 MSHCP: covered CRPR: 1B.1	Annual herb; sea level to about 1100 ft. elev.; open sand, coastal and inland; LA, RIV, SD, and SB Cos.	Mar - Jun	Low. (see Section 3.2.2.3 below)
<i>Pseudognaphalium leucocephalum</i>	White rabbit-tobacco	Fed: none Calif: S3.2 MSHCP: none CRPR: 2.2	Perennial herb; sea level to about 7000 ft. elev.; open sand, usually alluvium; SLO through SD cos, inland to Riv and San Bern cos; disjunct (and maybe a different species) from AZ, TX, Sonora	Jul - Nov	Moderate. (see Section 3.2.2.3 below)
<i>Romneya coulteri</i>	Coulter's matilija poppy	Fed: none Calif: S3.2 MSHCP: covered CRPR: 4.2	Chaparral, coastal scrub; often in burns; 20-1200 m	Mar – Jul	Moderate. (see Section 3.2.2.3 below)

Conservation Status

Federal designations: (federal Endangered Species Act, US Fish and Wildlife Service). Until 1996, FWS maintained a list of "category 2 candidates," described as species of concern, but for which insufficient data were available to support listing. This list is no longer maintained and FWS has no "SOC" category, though some agencies continue to cite it.

END: Federally listed, endangered.

THR: Federally listed, threatened.

Candidate: Sufficient data are available to support federal listing, but not yet listed.

Proposed: Formally proposed for federal status shown.

State designations: (California Endangered Species Act, California Dept. of Fish and Game)

END: State listed, endangered.

THR: State listed, threatened.

CDFW Natural Diversity Data Base Designations: Applied to special status plants and sensitive plant communities; where correct category is uncertain, CDFW uses two categories or question marks.

S1: Fewer than 6 occurrences or fewer than 1000 individuals or less than 2000 acres.

S1.1: Very threatened

S1.2: Threatened

S1.3: No current threats known

S2: 6-20 occurrences or 1000-3000 individuals or 2000-10,000 acres (decimal suffixes same as above).

S3: 21-100 occurrences or 3000-10,000 individuals or 10,000-50,000 acres (decimal suffixes same as above).

S4: Apparently secure in California; this rank is clearly lower than S3 but factors exist to cause some concern, i.e., there is some threat or somewhat narrow habitat. No threat rank.

S5: Demonstrably secure or ineradicable in California. No threat rank.

SH: All California occurrences "historical" (i.e., no records in > 20 years).

California Native Plant Society (CNPS) California Rare Plant Rank (CRPR). Note: According to CNPS (Tibor, ed., 2001 p. 54-55), plants on Lists 1A, 1B, and 2 meet definitions as threatened or endangered and "are eligible" for state listing. That interpretation of the state Endangered Species Act is not in general use.

1A: Plants presumed extinct in California.

1B: Plants rare and endangered in California and throughout their range.

2: Plants rare, threatened or endangered in California but more common elsewhere in their range.

3: Plants about which we need more information; a review list.

4: Plants of limited distribution; a watch list.

CNPS Threat Rank:

.1 Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat)

.2 Fairly endangered in California (20-80% occurrences threatened)

.3 Not very endangered in California (<20% of occurrences threatened or no current threats known)

Occurrence potential: Estimated occurrence potential based on literature sources cited earlier and field surveys and habitat analyses presented in this report.

Present: Observed on the site by qualified biologists.

High: Habitat is a type often utilized by the species and the site is within the known range of the species.

Moderate: Site is within the known range of the species and habitat on the site is a type occasionally used.

Low: Site is within the species' known range but habitat is rarely used, or the species was not found during May 2010 surveys.

Not Likely to Occur : No suitable habitat on the site; or well outside the species' known elevational or geographic ranges; or a focused study covering 100% of all suitable habitat, completed during the appropriate season and during a year of appropriate rainfall, did not detect the species.

3.2.2.3 *Special-status Plant Descriptions for Species with the Potential to Occur in the Project Area*

Federal and State Listed Plant Species

No federal or State listed as threatened or endangered plants were identified in the proposed project area. In addition, no federal or State listed as threatened or endangered plants are expected to occur in the proposed project area based on a lack of suitable habitat, suitable soil types, and the recognized distributions of these species in the region.

California Rare Plant Ranked Species and MSHCP Covered Species

Robinson's pepper-grass is the only special-status plant species that was observed within the project site. Five additional special-status plants have a potential to occur in the project area. These include Brand's phacelia, chaparral sand verbena, southern California black walnut, white-rabbit tobacco, and Coulter's Matilija poppy.

Phacelia stellaris

Brand's phacelia has a CRPR ranking of 1B.1, is considered rare in California and is covered under the Western Riverside County MSHCP. This species is a small annual herb that occurs in sandy soils at elevations ranging between 1 and 400 meters. This species typically blooms between March and June. Brand's phacelia occurs in coastal dunes; however, three occurrences have been found within southern California adjacent to major waterways in relatively open sandy soils. One of these occurrences is located approximately 12 miles northeast of the project area in the vicinity of the city of Riverside. This occurrence is on fine alluvial sands similar to those found in the project area. There are no known records of this species from the Temescal Wash or the Prado Basin; therefore, the potential of occurrence within the project area is low.

Chaparral sand verbena

Chaparral sand verbena has a CRPR ranking of 1B.1 and is considered rare in California. This verbena generally occurs in sandy alluvial soils in western Riverside County, in the vicinity of Whitewater in the Banning Pass, and in Garner Valley within the San Jacinto Mountains. Historically this species was known to occur in Orange County and throughout the Temescal Wash. The most recent known occurrence was an observation in 1986 near Corona Lake, over ten miles to the southeast of the project area (CCH, 2012). The project area supports suitable habitat and is downstream of historic occurrences; therefore, this species has a moderate potential to occur within the project area.

Paniculate tarplant

Paniculate tarplant has a CRPR ranking of 4.2 and has a limited distribution in California. This species is common in open, grasslands (including weedy annual grasslands) in much of western Riverside County and in parts of Orange and San Diego Counties. This species is known to occur within the vicinity of but has not been detected in the project area. Given the suitable habitat present within the project area and

the proximity to known occurrences this species has a high potential of occurrence within the project area.

Southern California black walnut

The southern California black walnut has a CRPR ranking of 4.2, has a limited range in California, and is covered under the Western Riverside County MSHCP. This species is a low-growing hardwood tree that is endemic to southern California. The range for southern California black walnut extends from San Luis Obispo County to the southeast along the SAR, and eastward through Riverside County. With the exception of a few areas where walnut-dominated woodlands occur, this species is generally associated with a mixture of other trees, particularly oaks and riparian vegetation. In riparian corridors, this species prefers dryer slopes that are rarely prone to flooding and erosional activity, yet are in proximity to ground water and/or seasonal surface water. Given the suitable habitat present within the project area and the proximity to known occurrences this species has a high potential of occurrence within the project area.

Robinson's pepper-grass

Robinson's pepper-grass has a CRPR/CNPS ranking of 4.3 and has a limited distribution in California. This species is an annual herb that typically blooms in early spring and generally occurs in chaparral and coastal sage scrub in western California, from Santa Cruz County to Baja California, and inland to western Riverside and San Bernardino Counties. Its primary habitat seems to be slightly sheltered open soils in shrublands, often on south-facing slopes, and around cobble-sized rocks or at the margins of shrubs, which may provide some moisture runoff. This pepper-grass does not compete well with other annual herbs, and is generally not found in annual grasslands, dense mustard stands, or north-facing slopes which tend to support a denser herb cover. This species was observed within the borrow site in March of 2010 (Consortium of California Herbarium, 2018). It was observed growing on an isolated patch of alluvial substrate along with a mixture of other small native annuals. It has not been observed at the same location since 2010 but is likely to be present or have seed in the seed bank present.

White rabbit-tobacco

White rabbit-tobacco has a CRPR ranking of 2.2. This species is distributed along coastal habitats of southern California, from southwestern Riverside County north to San Luis Obispo County. White rabbit-tobacco is a perennial herb that typically occurs in sandy to gravelly soils within chaparral, cismontane woodland, coastal scrub, and riparian woodland habitats. Although white rabbit-tobacco has not been reported within ten miles of the project area, suitable habitat does exist and the project area is within the known distribution for this species (CCH, 2012; CNPS, 2012); therefore, there is a moderate potential for white rabbit-tobacco to occur.

Coulter's Matillija poppy

Coulter's Matillija poppy has a CRPR ranking of 4.2, has a limited distribution in California, and is covered under the Western Riverside County MSHCP. This species is known to occur in southwestern California from Los Angeles to San Diego Counties and inland to western Riverside County. This poppy is a shrub with large, showy white flowers that typically open between March and July and forms dense clonal clumps in coastal sage scrub, alluvial scrub, chaparral, or oak woodland. This species usually germinates following wildfires, and tends to be conspicuous in shrubby vegetation for approximately 10 years following wildfire induced germination. Marginal suitable habitat occurs within the project area

and it is known to occur within five miles of the project area; therefore this species has a moderate potential to occur within the project area.

3.2.3 Jurisdictional Habitats

In the project area, both Temescal Wash and the percolation ponds/basins south of Rincon Road support areas identified as potential wetland and non-wetland “waters of the U.S.” as well as “waters of the State” and CDFW jurisdictional waters. Several small ephemeral drainages are also present near the borrow area and along the haul route that are likely to meet the criteria as non-wetland “waters of the U.S.” as well as “waters of the State” and CDFW jurisdictional waters.

“Waters of the U.S.”

Section 404 of the Clean Water Act provides the U.S. Environmental Protection Agency (EPA) and the United States Army Corps of Engineers (USACE) regulatory and permitting authority over activities that result in the discharge of dredged or fill material into “navigable Waters of the United States.” “Waters of the U.S.” are defined by the CWA as “rivers, creeks, streams, and lakes extending to their headwaters and any associated wetlands.” The limits of USACE jurisdiction under Section 404 as defined in 33 CFR Section 328.4 are as follows: (a) Territorial seas: three nautical miles in a seaward direction from the baseline; (b) Tidal waters of the U.S.: high tide line or to the limit of adjacent non-tidal waters; (c) Non-tidal waters of the U.S.: ordinary high water mark (OHWM) or to the limit of adjacent wetlands; (d) Wetlands: to the limit of the wetland.

“Waters of the State”

The Dickey Water Pollution Act of 1949 and Porter Cologne Act of 1969 established the State Water Resources Control Board (SWRCB) and nine Regional Water Quality Control Boards (RWQCB) in the State of California. The SWRCB and each RWQCB regulate activities in “Waters of the State” which include “Waters of the U.S.” “Waters of the State” are defined by the Porter-Cologne Act as “any surface water or groundwater, including saline waters, within the boundaries of the state.”

Wetlands

The USACE has defined the term “wetlands” as follows:

Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. (33 CFR 328.3)

The three parameters listed in the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (U.S. Army Corps of Engineers 2006)* that are used to determine the presence of wetlands are: (1) hydrophytic vegetation, (2) wetland hydrology, and (3) hydric soils. According to the Manual:

“....Evidence of a minimum of one positive wetland indicator from each parameter (hydrology, soil, and vegetation) must be found in order to make a positive wetland delineation.”

CDFW Jurisdictional Waters

The California Department of Fish and Wildlife (CDFW) jurisdiction is defined as the bed, bank and channel of rivers, lakes and streams to the landward edge of riparian vegetation. This includes rivers or

streams that flow at least periodically or permanently through a bed or channel with banks that support fish or other aquatic life and watercourses having a surface or subsurface flow that support or have supported riparian vegetation.

Reconnaissance level surveys in 2018, and previously in 2010 and 2011 identified areas potentially meeting the USACE criteria for “wetlands”. A formal jurisdictional delineation of the project site was completed in February of 2018 to identify jurisdictional waters and wetlands within the project site. For the purposes of this document the limits of the ordinary high water mark (OHWM) as determined by changes in physical and biological features, such as bank erosion, deposited vegetation or debris, and vegetative characteristics have been used to describe non-wetland waters of the US. Table 3.2.3-1 provides a description of the representative total acreage of Jurisdictional waters and wetlands and plant communities present in the Project area.

Table 3.2.3-1 Total Acreage of Jurisdictional Wetlands/Waters within Survey Area

Corps, RWQCB/CDFW Jurisdictional Habitat (Joint Jurisdiction)			
	Total Potential Jurisdictional Waters in Acres		Total Potential Jurisdictional Wetlands in Acres
	CDFW/RWQCB	Corps	Corps
	25.3	2.9	0.03
Total	25.3	2.9	0.03

3.2.4 Wildlife

Riparian communities support some of the most diverse assemblages of wildlife and provide access to water, shade, and cover. In addition, riparian systems are frequently considered one of the most productive forms of wildlife habitat in North America. The Prado Basin which occurs adjacent to the project area supports extensive riparian and aquatic habitat. Many bird species are wholly, or at least partially, dependent on riparian plant communities to perpetuate their kind (Warner et.al., 1984). The adjacent upland vegetation is also critical to many wildlife species. Because many aquatic and semi-aquatic species rely on adjacent terrestrial habitats to complete their life cycles (Semlitsch and Bodie 2003, Spinks et al. 2003, Burke and Gibbons 1995) and riparian vegetation provides necessary foraging and nesting habitat for many bird species (Rottenborn 1999, Bolger et al 1997); even relatively disturbed areas that are adjacent to existing riparian vegetation can be important to a suite of common and sensitive wildlife. Sensitive wildlife that occur at or adjacent to mitigation sites may periodically use these areas for foraging, dispersal, or other important behaviors.

The riparian and upland community types that occur in and adjacent to the SAR watershed provide habitat for a variety of resident and migratory wildlife species including several special-status species. Of particular importance are riparian areas that provide potential habitat for the federally threatened Santa Ana sucker (*Catostomus santaanae*), federally and State endangered least Bell’s vireo (*Vireo bellii pusillus*), California gnatcatcher (*Polioptila californica*), and southwestern willow flycatcher (*Empidonax traillii eximius*).

The project area is bordered by a park and industrial areas to the south, residential areas to the north, residential and industrial areas to the east, and Prado Basin and an airport to the west. Temescal Wash and the adjacent riparian and upland habitats likely function as a movement corridor and/or dispersal habitat for a number of wildlife species. In some locations natural lands adjacent to human disturbance have a lower species diversity. A few urban-adapted species, such as mourning dove and northern

mockingbird, were positively correlated with urbanization, but most species were negatively correlated. Factors associated with urbanization that are expected to contribute to lower species richness and densities in riparian zones near developed areas include an increase in the number of domestic cats (Rottenborn 1997), an increase in people recreating in riparian areas, noise, collisions on roads, and movement of people and domestic animals (Rottenborn 1999). The presence of the Corona Municipal Airport may adversely affect wildlife use in the project area to some degree. Several studies have documented the effects of pedestrian traffic on birds (Nowakowski 1994, Fernandez-Juricic 2000, Miller and Hobbs 2000), but, as with development generally, species vary in their sensitivity to this type of disturbance.

A complete list of the wildlife species identified in the project area is presented in Table 3.2-4. Special status species are indicated by an asterisk. This list includes only species observed on the site. Others may have been overlooked or unidentifiable due to the season and/or timing of surveys.

Table 3.2-4. Wildlife Species Observed Within the Project Area

Common Name	Latin Name
Reptiles	
Western pond turtle*	<i>Emys marmorata</i>
Western fence lizard	<i>Sceloporus occidentalis</i>
Side-blotched lizard	<i>Uta stansburiana</i>
Gopher Snake	<i>Pituophis melanoleucus</i>
Common kingsnake	<i>Lampropeltis getulus</i>
South coast garter snake*	<i>Thamnophis sirtalis ssp.</i>
Western rattlesnake	<i>Crotalus viridis</i>
Mammals	
California ground squirrel	<i>Spermophilus beecheyi</i>
Raccoon	<i>Procyon lotor</i>
Bobcat	<i>Lynx rufus</i>
Coyote (s)	<i>Canis latrans</i>
Feral pigs	<i>Sus scrofa</i>
Birds	
California gnatcatcher (<i>Poliophtila californica</i>)	
Mallard	<i>Anas platyrhynchos</i>
Great egret	<i>Ardea alba</i>
Great blue heron	<i>Ardea herodias</i>
Turkey Vulture	<i>Cathartes aura</i>
Sharp-shinned hawk*	<i>Accipiter striatus</i>
Cooper's hawk*	<i>Accipiter cooperii</i>
Red-shouldered hawk	<i>Buteo lineatus</i>
Red-tailed hawk	<i>Buteo jamaicensis</i>
Northern harrier*	<i>Circus hudsonius</i>
White-tailed kite*	<i>Elanus leucurus</i>
Burrowing owl*	<i>Athene cunicularia</i>
Mourning dove	<i>Zenaida macroura</i>
Rock dove	<i>Columba livia</i>

Table 3.2-4. Wildlife Species Observed Within the Project Area

Common Name	Latin Name
Greater roadrunner	<i>Geococcyx californianus</i>
Anna's hummingbird	<i>Calypte anna</i>
Black phoebe	<i>Sayornis nigricans</i>
Say's phoebe	<i>Sayornis saya</i>
Least Bell's vireo*	<i>Vireo bellii bellii</i>
Common raven	<i>Corvus corax</i>
American crow	<i>Corvus brachyrhynchos</i>
Horned Lark	<i>Eremophila alpestris</i>
Northern rough-winged swallow	<i>Stelgidoptryx serripennis</i>
Bushtit	<i>Psaltiparus minimus</i>
Bewick's wren	<i>Thryomanes bewickii</i>
European starling	<i>Sturnus vulgaris</i>
Orange-crowned warbler	<i>Vermivora celata</i>
Yellow-rumped warbler	<i>Dendroica coronata</i>
Common yellowthroat	<i>Geothlypis trichas</i>
California towhee	<i>Pipilo crissalis</i>
White-crowned sparrow	<i>Zonotrichia leucophrys</i>
Song sparrow	<i>Melospiza melodia</i>
Brown-headed cowbird	<i>Molothrus ater</i>
House finch	<i>Carpodacus mexicanus</i>
Lesser goldfinch	<i>Carduelis psaltria</i>

Common Wildlife

Invertebrates. As in all ecological systems, invertebrates play a crucial role in a number of biological processes. They serve as the primary or secondary food source for a variety of fish, bird, reptile, and mammalian predators; they provide important pollination vectors for numerous plant species; they act as efficient components in controlling pest populations; and, they support the maintenance of the area by consuming detritus and contributing to necessary soil nutrients. The SAR watershed provides habitat for a countless number of insects, crustaceans, and other invertebrate species. Although specific surveys for invertebrates were not conducted for the proposed project, it is expected that invertebrates in the project area are represented by a composition of insect species that commonly occur in southern California. These include representatives of various orders, such as Orthoptera (grasshoppers, crickets), Odonata (dragonflies, damselflies), Hemiptera (true bugs), Coleoptera (beetles), Diptera (flies), Hymenoptera (bees, wasps, ants), and Lepidoptera (butterflies, moths), among others.

Fish. During high flow events connectivity exists between Temescal Wash and the SAR. There are two native fish species that have been reported from the mainstem of the SAR that occurs just west of the project area. These species include the federally threatened and CDFW species of special concern Santa Ana sucker and the arroyo chub (*Gila orcutii*), a CDFW species of special concern. All other fish species known to occur in the SAR have been introduced and occur in varying densities and conditions. The three most abundant non-native fish include common carp (*Cyprinus carpio*), fathead minnow (*Pimephales promelas*), and western mosquitofish (*Gambusia affinis*). These three species make up about 95% of all the fish in the basin (Swift, unpublished data). Bluegill (*Lepomis macrochirus*) and goldfish (*Carassius auratus*) are also common.

Amphibians. Amphibians often require a source of standing or flowing water to complete their life cycle. However, some terrestrial species, such as toads and some salamanders, can survive in drier areas by remaining in moist environments found beneath leaf litter and fallen logs, or by burrowing into the soil. No amphibians were observed within the project area during 2018, and previous surveys in 2010 and 2011 surveys and habitat assessments. Although not detected in the project area a suite of common amphibians are known to occur in the Prado Basin (and surrounding areas) including, but not limited to, western toad (*Bufo boreas*), arboreal salamander (*Aneides lugubris*), and garden slender salamander (*Batrachoseps major*). These species are found particularly in upland habitats where moist microclimates are present (USGS, 2004). Commonly occurring amphibian species that would also be expected to occur in the project area include Pacific treefrog (*Pseudacris regilla*), California tree frog (*P. cadaverina*), and the non-native African clawed frog (*Xenopus laevis*).

Reptiles. The diversity of reptile species is related to the diversity of plant communities found in a given site. Typically, plant communities that have an abundant amount of undisturbed leaf litter, rocks, rotting logs, and other cover sources would have a higher diversity of reptile presence than those areas with regular disturbance, which results in the relative absence of cover features. Seven reptile species, including western fence lizard (*Sceloporus occidentalis*), side-blotched lizard (*Uta stansburiana*), gopher snake (*Pituophis melanoleucus*), common kingsnake (*Lampropeltis getulus*), and western rattlesnake (*Crotalus viridis*) were documented within the project area during 2018, 2010 and 2011 surveys. Although not detected within the project area, other common reptile species known to occur in the area that may be present include southern alligator lizard (*Elgaria multicarinata*), western skink (*Eumeces skiltonianus*), striped racer (*Masticophis lateralis*), western yellow-bellied racer (*Coluber constrictor*), California black-headed snake (*Tantilla planiceps*), and southern Pacific rattlesnake (*Crotalus viridis*) (USGS, 2004). Additionally, two California Species of Concern were observed within the project area and include western pond turtle (*Emys marmorata*) and south coast garter snake (*Thamnophis sirtalis*). Western pond turtle is also covered under the Western Riverside MSHCP. These two species are discussed further below.

Although no detected, the project area also supports suitable habitat for special-status reptiles covered under the MSHCP, including orange-throated whiptail (*Aspidoscelis hyperythra*), coastal whiptail (*A. tigris stejnegeri*), and coast horned lizard (*Phrynosoma blainvillii*). These species are discussed in greater detail below.

Birds. Bird diversity and abundance are especially high in the Prado Basin and surrounding riparian habitat. More than 200 species of birds have been recorded in this area (Hays, 1987). Of these, approximately 95-100 breed nearby in the Prado Basin, and many of these are likely to occur in the project area. In the Prado Basin migratory riparian songbirds are well represented. However, it should be noted with respect to bird use of riparian habitats that there is a well-known change in use by “migrant” species between the breeding season in spring and summer and in the winter. Most of the “Neotropical migrants” that are present during the breeding season are absent in the winter, and a different complement of “winter migrant” bird species is encountered then (in addition to resident species that are present in all seasons). Studies in the Central Valley (e.g., Hehnke and Stone 1979, Motroni 1979, Gaines 1980) have indicated that the absolute numbers of wintering riparian birds may equal or even exceed the numbers present in the breeding season. This is likely equally true in the Prado Basin.

Raptors, waterfowl, riparian obligates as well as grassland species are regular inhabitants of the project area. Some of the common species that were observed in the project area during the July 2017, and in previous surveys in May 2010 include, but are not limited to, mourning dove (*Zenaida macroura*), California towhee (*Pipilo crissalis*), American crow (*Corvus brachyrhynchos*), and common raven

(*Corvus corax*). In addition to special-status species, such as least Bell's vireo and California gnatcatcher, a number of common songbirds, such as lesser goldfinch (*Carduelis psaltria*), song sparrow (*Melospiza melodia*), house finch (*Carpodacus mexicanus*), bushtit (*Psaltiriparus minimus*), and black phoebe (*Sayornis nigricans*) were also identified in the project area. A variety of bird species that are closely tied to the open water resources available within the nearby Prado Basin may occasionally pass through the project area and may periodically forage on the project site. These species were observed during the surveys and include great blue heron (*Ardea herodias*), great egret (*A. alba*), and mallard (*Anas platyrhynchos*).

A substantial raptor population also resides in the nearby Prado Basin and several raptor and vulture species were observed utilizing the project area for foraging. These included turkey vulture (*Cathartes aura*), sharp-shinned hawk (*Accipiter striatus*), Cooper's hawk (*A. cooperii*), northern harrier (*Circus hudsonius*), white-tailed kite (*Elanus leucurus*). In general, raptor numbers are significantly augmented in winter when many northern birds are found wintering in the project area.

Many special-status birds have been documented within the project site in recent years including least Bell's vireo, California gnatcatcher (*Polioptila californica*), Cooper's hawk, sharp-shinned hawk, burrowing owl (*Athene cunicularia*), northern harrier, and white-tailed kite. These special-status species are addressed further below.

Mammals. Twenty-three species of mammals, including three non-native species, have been observed in the nearby Prado Basin (Zemba et al., 1985). Only two species of mammals California ground squirrel (*Spermophilus beecheyi*) and coyote (*Canis latrans*) were observed within the project area during the 2018, 2010 and 2011 surveys. Although not observed within the project area a variety of common small mammals, known from the Prado Basin, are likely to occur on the project area. These include the western harvest mouse (*Reithrodontomys megalotis*), California vole (*Microtus californicus*), Botta's pocket gopher (*Thomomys bottae*), western brush rabbit (*Oryctolagus cuniculus*), and black-tailed jackrabbit (*Lepus californicus*). The only large native ungulate expected to occur in the project area is the mule deer (*Odocoileus hemionus*). Meso-predators known from the general area include gray fox (*Urocyon cinereoargenteus*), raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), and long-tailed weasel (*Mustela frenata*). Top carnivores that could occur in the project area include bobcat (*Lynx rufus*) and mountain lion (*Puma concolor*).

Portions of the project area also supports suitable foraging habitat for a variety of bat species; however, roosting habitat is limited to the large non-native woodlands. No bats were identified in the project area during previous survey; however bat surveys were not conducted and pallid bat (*Antrozous pallidus*), western mastiff bat (*Eumops perotis californicus*), yuma myotis (*Myotis yumanensis*), and pocketed free-tailed bat (*Nyctinomops femorasaccus*), all CDFW Species of Special Concern, are known to occur in the area. It is possible that other bat species are present either as periodic roosters or permanent residents in the large trees near the site.

Wildlife Movement

Linkages and corridors facilitate regional animal movement and are generally centered around waterways, riparian corridors, flood control channels, contiguous habitat, and upland habitat. Drainage ways generally serve as movement corridors because they are natural elements in the landscape that guide animal movement (Noss, 1991; Ndubisi et al., 1995; R. Walker and Craighead, 1997, in Hilty et al., 2006). Corridors also offer wildlife unobstructed terrain for foraging and for dispersal of young individuals. It is also necessary to consider spatial and temporal scales when analyzing potential

corridors. Species may require varying spatial scales to fulfill their life history requirements and use of corridors can be important on temporal scales ranging from time periods as short as hours to as long as generations, depending on the desired use of the corridor.

Undisturbed landscapes contain a variety of movement corridors, habitat linkages, travel routes, wildlife crossings and other features that facilitate wildlife movement through the landscape and contribute to population stability. The relative size and characteristics of these features are different for each species that uses them. When human activities fragment landscapes, movement corridors, habitat linkages, travel routes, and wildlife crossings may be altered or eliminated. Continued use of these features by wildlife depends on their ability to find adequate space, cover, food, and water, in the absence of obstacles or distractions (e.g., man-made noise, lighting) that might interfere with wildlife movements.

Although impacts to wildlife movement have been analyzed in areas west of the project area in regards to movement to/from the Cleveland National Forest and Chino Hills State Park, there has been no known widespread analysis, conducted within the project area as a corridor for wildlife movement. Although sufficient evidence is lacking, the SAR, Temescal Wash, and its associated uplands, are recognized as vital pathways for wildlife movement. Several migratory songbirds utilize the riparian vegetation within the SAR corridor for breeding, nesting, and foraging, or at a minimum, as transient rest sites during migration. In addition, large, wide-ranging animals, such as mountain lion, bobcat, and coyote have been documented within the SAR watershed and may utilize the SAR corridor and Temescal Wash in search of prey, water resources, or cover.

Even considering smaller spatial scales or single habitat types, habitat fragmentation is no less important an issue. At these spatial scales, several studies have documented the negative effects on population structure, home range size, and genetic connectivity resulting from dirt roads, pipeline corridors, transmission line corridors, and other seemingly innocuous features traversing formerly undisturbed habitat (Mader, 1984; Swihart and Slade, 1984; Dunning et al., 1992).

No known anthropogenic barriers to dispersal for ground-dwelling wildlife and plants were observed within the Study Area.

Special-Status Wildlife Species

Special-status wildlife for this SEA/EIR Addendum include those listed as threatened or endangered under the federal or California Endangered Species Acts, species proposed for listing, species of special concern, those that are included in the Western Riverside MSHCP, and other species which have been identified by the USFWS, CDFW, or have been assigned local jurisdictions as unique or rare and which have the potential to occur within the proposed project area. Each of these species was assessed for its potential to occur within the Alcoa Dike project area.

The 2001 SEIS/EIR identified seven bird species, two amphibian species, and one fish species that occur or potentially occur in the Prado Basin area that have been given special protection under the federal and/or California Endangered Species Act. The least Bell's vireo was listed as endangered in 1986. It is a common summer breeding resident in the nearby Prado Basin and the project area. As such, this species has been a major focus in previous documents. The southwestern willow flycatcher, another summer breeding resident in the Prado Basin, is much less common. It was afforded protection under the federal Endangered Species Act nine years later in 1995. The peregrine falcon was formally listed in 1984, but was already protected under legislation that preceded the Endangered Species Act of 1973 and has since been delisted. The bald eagle was formally listed in 1978 however it was delisted in 2007. Both species are occasional winter visitors to the Prado Basin, but are not known to breed in the study area. In 2000,

the Santa Ana sucker was listed as a federal Threatened Species. The arroyo southwestern toad was listed as Endangered in 1995; however, it has never been recorded in the project area. The California red-legged frog was listed as Threatened in 1996 and was formerly a resident in the Prado Basin, but is not expected to occur in the project area. The 2001 SEIS/EIR also analyzed two additional species, western yellow-billed cuckoo and Swainson's hawk, that are listed as State endangered and threatened, respectively. In recent years California gnatcatcher have been reported foraging within the project's proposed borrow site. The California gnatcatcher was listed as Threatened in 1993. They have been expanding their range in the Prado Basin and one pair of gnatcatcher and a single dispersing individual were observed within the borrow site in 2017.

Updated survey efforts, occurrence information, distribution maps, literature, and correspondence with local experts have been utilized to refine the list of special-status species either present or with a potential to occur in the proposed project area. A total of seven special-status wildlife species have been identified within the project site included western pond turtle, sharp-shinned hawk, northern harrier, white-tailed kite, Least Bell's vireo, California gnatcatcher, and Cooper's hawk. Additionally, a suite of special-status species, although not observed, are known to be present in the vicinity of and potentially occur in project area. Table 3.2-5 lists all the species documented in the literature, listed in the CNDDB for USGS quads encompassing the proposed project area, or covered under the Western Riverside MSHCP regardless of the presence of habitat or likelihood of occurrence. Only those species known to be present or those with at least a low potential to occur within the project area will be discussed further in this document.

ALCOA DIKE
3. Affected Environment

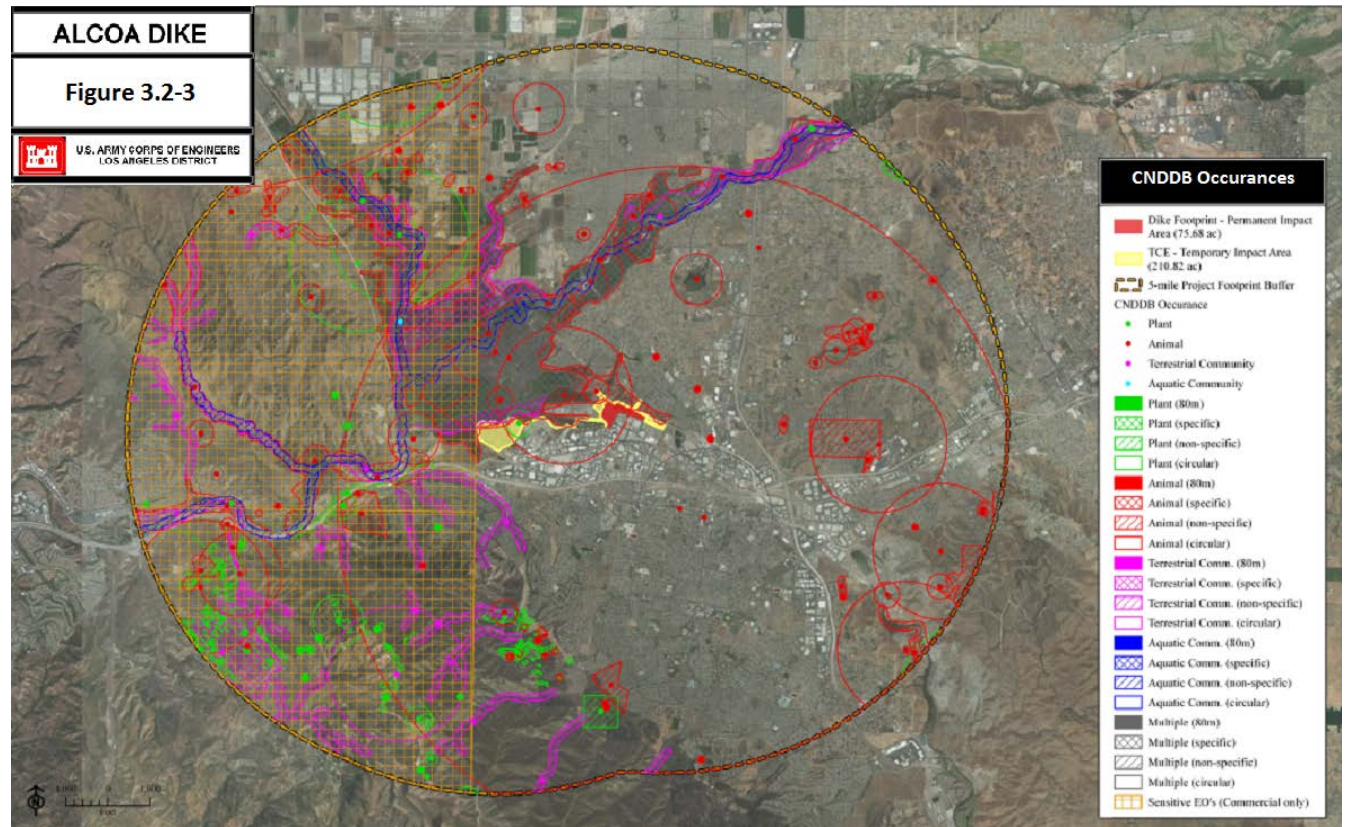


Table 3.2-5 Special Status Wildlife and their Probability to Occur Within the Project Area

Scientific Name	Common Name	Conservation Status	Habitat and Distribution	Occurrence Probability in Project Area
INVERTEBRATES				
<i>Branchinecta lynchi</i>	Vernal pool fairy shrimp	Fed: THR Calif: none MSHCP: covered	Restricted to seasonal vernal pools	Low. There are no known records for this species in the project area or surrounding areas; although the project area is located within the known geographic distribution for this species. No indication of vernal pools or other suitable seasonal pools were identified in the project area.
<i>Euphydryas editha quino</i>	Quino checkerspot butterfly	Fed: END Calif: none MSHCP: covered	Sparsely vegetated, rounded hilltops, ridgelines; closely associated with host plants, including <i>Plantago erecta</i> , <i>P. patagonia</i> , and <i>Antirrhinum coulterianum</i>	Not Likely to Occur. No suitable habitat.
<i>Linderiella santarosae</i>	Santa Rosa Plateau fairy shrimp	Fed: none Calif: none MSHCP: covered	Restricted to seasonal southern basalt flow vernal pools with cool clear to milky waters that are moderately predictable and remain filled for extended periods of time	Not likely to occur. There are no known records for this species in the project area or surrounding areas and the specific habitat requirements are not present within the project

Table 3.2-5 Special Status Wildlife and their Probability to Occur Within the Project Area

Scientific Name	Common Name	Conservation Status	Habitat and Distribution	Occurrence Probability in Project Area
<i>Rhaphiomidas terminatus abdominalis</i>	Delhi sands flower-loving fly	Fed: END Calif: none MSHCP: covered (addl. survey area)	Remnant sandy soils (Delhi series) with sparse native vegetation including buckwheat, telegraph weed, croton; endemic to Colton and surrounding area. Summer	area. Not Likely to Occur: Endemic to the Colton Dunes. Inhabits areas with Delhi soil series. No suitable habitat occurs within the Project area.
<i>Streptocephalus woottoni</i>	Riverside fairy shrimp	Fed: END Calif: none MSHCP: covered	Restricted to deep seasonal vernal pools, vernal pool-like ephemeral ponds, and stock ponds and other human-modified depressions	Low. There are no known records for this species in the project area or surrounding areas, although the project area is located within the known geographic distribution for this species. No indication of vernal pools or other suitable seasonal pools were identified in the project area.
FISH				
<i>Catostomus santaanae</i>	Santa Ana sucker	Fed: THR Calif: CSC MSHCP: covered	Major cismontane stream systems in S Calif. incl. Sta Ana Riv., formerly below 3000 ft. elev.; extant populations near Riverside and downstream. Year-round	Low. This species is known from portions of the Santa Ana River where suitable habitat occurs above and below the Prado Dam. Nearest record is within the mainstem of the SAR, approximately one mile upstream and downstream of the project area. Potentially present during times of heavy flows; however, perennial flows are not present within the project area.
<i>Gila orcutti</i>	Arroyo chub	Fed: none Calif: CSC MSHCP: covered	Slow-flowing sections or backwaters, cismontane stream systems in S Calif. incl. Sta Ana Riv.; extant populations near Riverside and down-stream; introduced populations occur outside historic native range Year-round	High. Known from Corona North USGS quad in isolated sections of the Santa Ana River from Riverside and San Bernardino county line downstream to the Prado Dam (Swift 2001). Historical record exists from the pool located just below where Temescal Wash flows under Rincon Road.
AMPHIBIANS				
<i>Rana draytonii</i>	California red-legged frog	Fed: THR Calif: CSC MSHCP: covered	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation; requires 11-20	Low. Although not documented from the project area, this species was historically present within the Prado Basin. The project

Table 3.2-5 Special Status Wildlife and their Probability to Occur Within the Project Area

Scientific Name	Common Name	Conservation Status	Habitat and Distribution	Occurrence Probability in Project Area
			weeks of permanent water for larval development; must have access to aestivation habitat	area is located within of the known geographic distribution for this species; suitable but limited habitat occurs within portions of the project area..
<i>Spea hammondi</i>	Western spadefoot	Fed: none Calif: CSC MSHCP: covered	Breeds in quiet streams, temporary ponds, vernal pools, burrows in sand during dry season; sea level to about 4500 ft. elev.; Central Val to N Baja. October-April	High. Breeding populations have been documented nearby. Ponded water, such as vernal pools or road pools, or slow moving streams are required for breeding. Old percolation ponds just east of Rincon Road and within Temescal Wash may provide suitable habitat for this species.
REPTILES				
<i>Actinemys marmorata</i>	Western pond turtle	Fed: none Calif: CSC MSHCP: covered	Perennial ponds, streams; breed & overwinter in adjacent uplands; coastal S and cent. Calif., NW Baja Calif., below about 4800 ft. elev. Year-round	Present. This species was observed in the northwestern portion of the project area in a deep pool just below where Temescal Wash crosses under Rincon Road.
<i>Aniella pulchra pulchra</i>	Silvery (California) legless lizard	Fed: none CA: CSC MSHCP: covered	Sandy or loose loamy soils under sparse vegetation; soil moisture is essential; prefer soils with high moisture content.	Moderate. Although scattered records occur for this subspecies throughout western Riverside County, the project area supports only marginal habitat, at best due to its isolation, frequent flooding and surrounding disturbance; not identified during surveys.
<i>Aspidoscelis hyperythra</i>	Orange-throated whiptail	Fed: none Calif: CSC MSHCP: covered	Inhabits low-elevation coastal scrub, chaparral, and valley-foothill hardwood habitats; prefers washes and other sandy areas with patches of brush and rocks; perennial plants necessary to support major food source of termites	Moderate: Habitat is marginal for this species within the Project area. Nearest records are within 5 miles southwest of the Project area in Coal Canyon and 4.9 miles west of the area near Scully Hill.
<i>Aspidoscelis tigris stejnegeri</i>	Coastal whiptail	Fed: none Calif: SA MSHCP: covered	Found in deserts and semi-arid areas with sparse vegetation and open areas; also found in woodland and riparian habitats; substrates may be firm soil, sandy, or rocky	Moderate: The project area supports suitable habitat for this species; nearest known record occurs roughly 8.5 miles southwest of the project area in Weir Canyon.
<i>Diadophis punctatus</i>	San Bernardino ringneck snake	Fed: none Calif: SA MSHCP: none	Most common in open, relatively rocky areas; often in somewhat moist microhabitats near intermittent streams;	Present. Although this species was not identified during 2010 and 2011 surveys this snake has been

Table 3.2-5 Special Status Wildlife and their Probability to Occur Within the Project Area

Scientific Name	Common Name	Conservation Status	Habitat and Distribution	Occurrence Probability in Project Area
			avoids moving through open or barren areas by restricting movements to areas of surface litter or herbaceous vegetation	recently documented in project area. The project area is located within the known geographic distribution for this species and suitable habitat occurs within the project area.
<i>Crotalus ruber ruber</i>	Red diamond rattlesnake	Fed: none Calif: CSC MSHCP: covered	Coastal sage scrub, chaparral, desert scrub; SW Calif, Baja Calif.; sea level to about 5000 ft. elev. Spring - summer	Low. There are no known records for this species in the project area or surrounding areas; the project area is located within the known geographic distribution for this species.
<i>Lampropeltis zonata</i>	California mountain kingsnake	Fed: none Calif: CSC MSHCP: covered	Valley foothill-hardwood, hardwood conifer forest, chaparral, valley-foothill riparian forest, coniferous forest, wet meadows	Low. There are no known records for this species in the project area or surrounding areas; the project area is located within the known geographic distribution for this species.
<i>Phrynosoma blainvillii</i>	Coast horned lizard	Fed: none CA: CSC MSHCP: covered	Sandy soils, forest, shrubland or grassland; W Calif. from LA Co through Baja Calif., below about 6000 ft. elev.	High: This species has been reported from the general region surrounding the project area; the project area supports suitable habitat and is within the known geographic distribution for this species.
<i>Thamnophis hammondi</i>	Two-striped garter snake	Fed: none Calif: CSC MSHCP: none	Highly aquatic; found in or near permanent fresh water; often along streams with rocky beds and riparian growth.	High. Although this species was not identified during 2010 and 2011 surveys, the project area is within the known geographic range of the species and suitable habitat occurs. This species is known to occur within the Prado Basin and surrounding areas and is common near water.
<i>Thamnophis sirtalis</i> ssp.	South coast garter snake	Fed: none Calif: CSC MSHCP: none	Inhabits scrub, chaparral, annual and native grassland, freshwater marsh and agriculture.	Present. This species was last observed within the project area during surveys in 2010 and 2011.
BIRDS				
<i>Accipiter cooperii</i>	Cooper's hawk	Fed: none Calif: CSC (nesting) MSHCP: covered	Nests and hunts in forest & woodland, also forages in open areas; most of US, Central and S America. Year-around	Present: This species was last observed flying over and foraging in the project area during the 2010 and 2011 surveys. Nesting habitat is available within and near the project area; however, no active nests have been

Table 3.2-5 Special Status Wildlife and their Probability to Occur Within the Project Area

Scientific Name	Common Name	Conservation Status	Habitat and Distribution	Occurrence Probability in Project Area
				found or reported.
<i>Accipiter striatus</i>	Sharp-shinned hawk	Fed: none Calif: CSC (nesting) MSHCP: covered	Nests in conifer and riparian forests, preferably on north facing slopes near water. Forages in many habitats in winter and migration.	Present: This species was observed flying over and foraging in the project area during the recent surveys. Breeding habitat does not occur in the project area.
<i>Aimophila ruficeps canescens</i>	Southern California rufous-crowned sparrow	Fed: none Calif: CSC MSHCP: covered	Valley foothill-hardwood, hardwood conifer forest, chaparral, valley-foothill riparian forest, coniferous forest, wet meadows	Not Likely to Occur. No suitable habitat.
<i>Ammodramus savannarum</i>	Grasshopper sparrow	Fed: none Calif: CSC MSHCP: specific objectives	Dense grasslands on rolling hills, lowland plains; in valleys and on hillsides on lower mountain slopes; favors native grasslands with a mix of grasses, forbs, and scattered shrubs.	High: This species has been reported from within less than one mile of the borrow site. Marginally suitable habitat is present; not identified during surveys.
<i>Amphispiza belli belli</i>	Bell's sage sparrow	Fed: none Calif: CSC MSHCP: covered	Uncommon to fairly common localized breeder in dry chaparral and coastal sage scrub habitats.	Not Likely to Occur. No suitable habitat.
<i>Aquila chrysaetos</i>	Golden eagle	Fed: none Calif: FP, CSC MSHCP: covered	Uncommon resident in southern California; nests primarily located in rugged, isolated mountain areas	Moderate: This species has been historically reported nesting in the Chino Hills and has been documented flying over adjacent areas. The project area does not support suitable nesting habitat; however, this species may infrequently fly over and forage within the project area.
<i>Ardea herodias</i>	Great blue heron	Fed: none Calif: SA MSHCP: covered	Rookery sites typically occur in groves of large trees within proximity to aquatic foraging areas of streams, wetlands, and grasslands	Present. This species was last identified in the project area during 2010 and 2011 surveys; suitable rookery site habitat does not occur; however, this species may utilize the project area for foraging opportunities.
<i>Asio flammeus</i>	Short-eared owl	Fed: none Calif: CSC MSHCP: none	Known from a variety of low vegetation communities including grassland, prairies, dunes, meadow, irrigated lands, saline and freshwater emergent wetlands.	High. Although this species was not detected during recent surveys, it has been recorded in project area and has the potential to be present in the large open grasslands that occur on the project site.
<i>Asio otus</i>	Long-eared owl	Fed: none Calif: CSC MSHCP: none	Dense, riparian and live oak vegetation often adjacent to grasslands or meadows.	High. Although this species was not detected during recent surveys, it has been

Table 3.2-5 Special Status Wildlife and their Probability to Occur Within the Project Area

Scientific Name	Common Name	Conservation Status	Habitat and Distribution	Occurrence Probability in Project Area
			Forages in grassland, open areas and agriculture fields.	recorded in project area; large windrows support suitable nesting habitat and the species may utilize the area for foraging.
<i>Athene cunicularia</i> (<i>Speotyto cunicularia</i>)	Burrowing owl	Fed: none Calif: CSC (burrow sites) MSHCP: covered (addl. survey)	Open, dry perennial or annual grasslands, deserts, and scrublands characterized by low-growing vegetation; subterranean nester, dependent upon burrowing mammals, particularly California ground squirrels	Present. This species (one individual) was observed within the borrow site during the winter of 2017. No nesting was confirmed at the time and no additional observations have been made; suitable habitat throughout.
<i>Botaurus lentiginosus</i>	American bittern	Fed: none Calif: SA MSHCP: covered	Found almost exclusively in emergent habitat of freshwater marshes and vegetate borders of ponds and lakes	Moderate. Known from the Prado Basin; probably extirpated as a nesting resident; may still occur as a rare migrant or wintering species.
<i>Buteo regalis</i>	Ferruginous hawk	Fed: none Calif: CSC (wintering) MSHCP: covered	Open grasslands, sagebrush flats, desert scrub, low foothills, and fringes of pinyon-juniper habitats	Low: Although this species does not breed in southern California, it has been reported as a rare winter visitor in the Prado Basin; may forage within or fly over the project area.
<i>Buteo swainsoni</i>	Swainson's hawk	Fed: none Calif: THR (nesting) MSHCP: covered	Breeds in interior valleys and high desert with scattered large trees or riparian woodland corridors surrounded by open fields, desert scrub or agriculture. Spring through Fall	Moderate: Although this species was formerly common in southern California, it no longer breeds in the region; this species has been reported from the Prado Basin, where it likely occurs during spring migrations.
<i>Carduelis lawrencei</i>	Lawrence's goldfinch	Fed: none Calif: SA MSHCP: covered	Nests in open oak or other arid woodland and chaparral near water; nearby herbaceous habitats used for foraging; closely associated with oaks	Present. Although this species was not detected in the project area during the most recent surveys, it has been previously observed in the project area is assumed present. Suitable nesting habitat is present within and this species may forage throughout the project area.
<i>Cathartes aura</i>	Turkey vulture	Fed: none Calif: none MSHCP: covered	Throughout US and Cent. America; forages widely over many habitats; roosts communally in open trees; nests on cliffs or steep mountainsides in sheltered	Present: Common in the region; the project area does not support suitable nesting habitat; however, this species is known to fly through and forage in the

Table 3.2-5 Special Status Wildlife and their Probability to Occur Within the Project Area

Scientific Name	Common Name	Conservation Status	Habitat and Distribution	Occurrence Probability in Project Area
			shrubby or rocky sites. Spring - summer	project area.
<i>Chaetura vauxi vauxi</i>	Vaux's swift	Fed: none Calif: CSC MSHCP: none	This subspecies breeds primarily in old growth coniferous and mixed-coniferous forests. Large-diameter, hollow trees, living or dead, are a necessary requirement for breeding and roosting (Bull and Collins, 1993).	High. Although this species was not detected during the most recent surveys, it has been recently recorded in the nearby USACE Auxiliary Dike site and has previously been observed within the project area. This species is expected to occur within the project area.
<i>Circus cyaneus</i>	Northern harrier	Fed: none Calif: CSC (nesting only) MSHCP: covered	Prefer open country, grasslands, steppes, wetlands, meadows, agriculture fields; roost and nest on ground in shrubby vegetation often at edge of marshes	Present. Although this species was not detected during 2010 and 2011 surveys, it has been recently recorded in project area; this species does not nest in the project area but may utilize the area for foraging.
<i>Coccyzus americanus occidentalis</i>	Western yellow-billed cuckoo	Fed: T Calif: SE MSHCP: covered	Strongly associated with large complex riparian woodlands.	Low. Although this species was not detected during surveys of the proposed project area, it has been previously recorded in the Prado Basin in 2011; this species is not expected to nest on the project site but may utilize the area for foraging.
<i>Dendroica petechia</i>	Yellow warbler	Fed: none Calif: CSC (nesting) MSHCP: covered	Riparian plant associations; prefers willows, cottonwoods, aspens, sycamores, and alders for nesting and foraging	High. it was not detected in the project area, However this species was recently identified at the USACE Reach 9 2A project, two mile downstream of the prado basin; the project area does supports suitable foraging and nesting habitat.
<i>Elanus leucurus</i>	White-tailed kite	Fed: none Calif: FP MSHCP: covered	Typically nests at lower elevations in riparian trees, including oaks, willows, and cottonwoods; forages over open country	Present. This species is observed regularly within the borrow site; breeding is strongly suspected though not confirmed in the area.
<i>Empidonax traillii extimus</i>	Southwestern willow flycatcher	Fed: END Calif: END (nesting) MSHCP: covered (rip./riv/pool)	Riparian obligate. Breeds in willow riparian forests & shrublands at scattered locations in SW US and N Baja; winters in Cent. Amer.; threatened by habitat loss and cowbird parasitism. Summer (May through August)	Low. Known from three surrounding USGS quads. Successful nesting was documented in the Prado Basin from 1988 to 2007; not detected in the project area during extensive surveys conducted by SAWA since 2001.

Table 3.2-5 Special Status Wildlife and their Probability to Occur Within the Project Area

Scientific Name	Common Name	Conservation Status	Habitat and Distribution	Occurrence Probability in Project Area
<i>Eremophila alpestris actia</i>	California horned lark	Fed: none Calif: CSC MSHCP: covered	Short-grass prairie, bald hills, mountain meadows, open coastal plains, fallow grain fields, alkali flats	High. Although this subspecies was not identified during the surveys, it was reported at the nearby Auxiliary Dike project site and suitable habitat is present on the project site.
<i>Falco columbaris</i>	Merlin	Fed: none Calif: CSC (wintering) MSHCP: covered	Seacoasts, tidal estuaries, open woodlands, savannahs, edges of grasslands and deserts, farms and ranches; require clumps of trees or windbreaks for roosting in open country.	Moderate: This species occurs as a winter visitor within the Prado Basin and may occur foraging or flying over the project area.
<i>Falco mexicanus</i>	Prairie falcon	Fed: none Calif: CSC (nesting) MSHCP: covered	Rare in southern California; nests along cliff faces or rocky outcrops; forages over open spaces, agricultural fields	Low: May fly through or forage. This species has been observed foraging in the Puente/Chino Hills and Chino Hills State Park (Scott and Cooper, 1999). No nesting habitat occurs within the project area.
<i>Falco peregrines</i>	American peregrine falcon	Fed: none Calif: FP, CSC MSHCP: covered	Prefers coastal estuaries and other wetlands; occurs in S. California as a rare migrant	Low: May fly through or forage. Occurs as a rare and transient winter visitor to the Prado Basin. No nesting habitat occurs within the project area.
<i>Haliaeetus leucocephalus</i>	Bald eagle	Fed: none Calif: FP MSHCP: covered	Breed in large trees, usually near major rivers or lakes; winters more widely; wide but scattered distribution in N America; esp. coastal regions. Winter	Low: Historically known to breed in the area. Observed breeding in Prado Basin in 2000. May fly over the project area, although foraging opportunities are extremely limited.
<i>Icteria virens</i>	Yellow-breasted chat	Fed: none Calif: CSC (nesting) MSHCP: covered	Summer resident; inhabits riparian thickets of willow and other brushy tangles near water courses; nests in low, dense riparian vegetation; nests and forages within 10 feet of ground	High. Although not observed within the project area this species was recently identified at the nearby USACE Reach 9 2A project; project area supports suitable nesting habitat.
<i>Lanius ludovicianus</i>	Loggerhead shrike	Fed: none Calif: CSC (nesting) MSHCP: covered	Broken woodland, savannah, pinyon-juniper woodland, Joshua tree woodland, riparian woodland, desert oases, scrub, and washes; prefers open country for hunting with perches for scanning and fairly dense shrubs and brush for nesting	Moderate: Known to forage in upland habitats within the Prado Basin. Observed but uncommon at the nearby USACE Auxiliary Dike project. Suitable nesting habitat in project area minimized by local disturbance from recreation and residential development.
<i>Melospiza lincolni</i>	Lincoln's sparrow	Fed: none Calif: none	Breeds in montane wetlands, meadows, and riparian scrub;	Moderate: Known from the surrounding riparian forests.

Table 3.2-5 Special Status Wildlife and their Probability to Occur Within the Project Area

Scientific Name	Common Name	Conservation Status	Habitat and Distribution	Occurrence Probability in Project Area
		MSHCP: specific obj (breeding)	fairly common and widespread in winter at lower elev. winter	Suitable habitat exists within the project area. May be an uncommon winter visitor.
<i>Pandion haliaetus</i>	Osprey	Fed: none Calif: WL MSHCP: covered	Breeds in variety of habitats with shallow water and large fish, including boreal forest ponds, desert salt-flat lagoons, temperate lakes, and tropical coasts. Winters along large bodies of water containing fish.	Low. May fly over the project area, although foraging opportunities are extremely limited. No suitable nesting habitat exists within the project area.
<i>Phalacrocorax auritus</i>	Double-crested cormorant	Fed: none Calif: WL MSHCP: covered	Require lakes, rivers, reservoirs, estuaries, or ocean for foraging; nests in tall trees, wide rock ledges on cliffs, or rugged slopes near aquatic environments	High. Although not observed within the project area this species was observed in flight above the USACE Reach 9 2A project area during May surveys, it occurs in transience only; the project area does not support suitable nesting or foraging habitat.
<i>Picoides pubescens</i>	Downy woodpecker	Fed: none Calif: none MSHCP: covered	Forests and woodlands, esp. riparian areas in So. Calif; also wooded suburbs and parks; builds nests in dead trees. year-around	High. Although not observed within the project area this species was identified at the nearby USACE Reach 9 2A project in May 2010. Suitable breeding habitat occurs in the project area.
<i>Plegadis chihi</i>	White-faced ibis	Fed: none Calif: CSC (rookery sites) MSHCP: covered	Shallow freshwater marsh; prefers dense tule thickets for nesting and shallow water for foraging	Low: Although this species is known to frequent areas upstream of Prado Dam, it would be expected to occur in the project area as a transient only; the project area does not support suitable nesting or foraging habitat.
<i>Poliophtila californica californica</i>	Coastal California gnatcatcher	Fed: THR Calif: CSC MSHCP: covered	Obligate, permanent resident of coastal sage scrub below 2500 ft in southern California; low scrub in arid washes, on mesas and slopes	Present: This species has been documented breeding in the adjacent to the project area during surveys in 2017 (OCWD 2017). The project area does support suitable habitat.
<i>Pyrocephalus rubinus</i>	Vermillion flycatcher	Fed: none Calif: CSC	Scrub, desert, cultivated lands and riparian woodlands (Cornell, 2012).	High. Although not observed within the project area this species is known to occur in the Prado Basin. Suitable breeding habitat occurs in the project area.
<i>Vireo bellii pusillus</i>	Least Bell's vireo	Fed: END Calif: END MSHCP: covered (rip./riv/pool)	Summer resident of southern California in low riparian habitats in vicinity of water or dry river bottoms; found below	Present. This species has been documented breeding in and adjacent to the project area (SAWA, 2017).

Table 3.2-5 Special Status Wildlife and their Probability to Occur Within the Project Area

Scientific Name	Common Name	Conservation Status	Habitat and Distribution	Occurrence Probability in Project Area
			2000 ft; nests placed along margins of bushes or on twigs projecting into pathways, usually willow, mesquite, baccharis	
MAMMALS				
<i>Antrozous pallidus</i>	<i>Pallid bat</i>	Fed: none Calif: CSC MSHCP: none	Desert, grassland, shrubland, woodland, forest; most common in open, dry habitats with rocky areas for roosting; very sensitive to disturbance of roosting sites	Moderate. Although this species was not detected during recent surveys, this species is known from three surrounding USGS quads and suitable foraging habitat occurs in the Project area. Limited roosting habitat occurs within the project area.
<i>Canis latrans</i>	Coyote	Fed: none Calif: none MSHCP: covered	Opportunistic predators; many habitats throughout US, Mexico & S Canada, where cover & prey available. Year-around	Present. Coyotes are regularly observed on the project site; project area is located in the vicinity of known movement corridors.
<i>Dipodomys simulans</i> (<i>D. agilis simulans</i>)	Dulzura kangaroo rat	Fed: none Calif: none MSHCP: covered	Shrublands, near sea level to about 7400 ft. elev.; LA Co. east to SW San Bernardino Co. and S to N Baja Calif. Year-around	Low: No records exist for the area but suitable habitat exists nearby.
<i>Dipodomys stephensi</i>	Stephens kangaroo rat	Fed: END Calif: THR MSHCP: covered	Primarily annual and perennial grasslands, but also occurs in coastal scrub and sagebrush with sparse canopy cover; prefers buckwheat, chamise, brome grass, and filaree; will burrow into firm soil	Not Likely to Occur. This species is only likely to occur in transience. There has been no recent recorded evidence (i.e. inter-related burrows, runways, sufficient open forb-rich habitat) in the project area.
<i>Eumops perotis californicus</i>	<i>Western mastiff bat</i>	Fed: none Calif: CSC MSHCP: none	Prefers deciduous and coniferous woodlands; primarily roosts in tree foliage	High. This subspecies was identified in the nearby USACE Reach 9 2A Project in 2010. Suitable habitat occurs throughout the project areas.
<i>Lepus californicus bennettii</i>	San Diego black-tailed jackrabbit	Fed: none Calif: CSC MSHCP: covered	Intermediate canopy stages of shrub habitats and shrub, tree, herbaceous edges; primarily coastal sage scrub habitats	High: This subspecies is known from the Prado Basin and was recently observed within the nearby USACE Auxiliary Dike project; project area supports suitable habitat.
<i>Lynx rufus</i>	Bobcat	Fed: none Calif: none MSHCP: covered	Opportunistic predators; many habitats throughout US, Mexico & S Canada, where cover & prey available. Year-around	Present: This species has been observed within the borrow site; project is located in the vicinity of a known movement corridor for this species.

Table 3.2-5 Special Status Wildlife and their Probability to Occur Within the Project Area

Scientific Name	Common Name	Conservation Status	Habitat and Distribution	Occurrence Probability in Project Area
<i>Mustela frenata</i>	Long-tailed weasel	Fed: none Calif: none MSHCP: covered	Generalist predator, mainly on small mammals; many habitats, US, Mexico, S Canada (excl. deserts). Year-around	High: Species is relatively common within riparian corridors, but rarely observed; has been reported at the USACE field office west of the project area.
<i>Felis concolor</i>	Mountain lion	Fed: none Calif: none MSHCP: covered	Large areas where prey (mainly deer) is available; throughout W N Amer; vulnerable to habitat fragmentation. Year-around	Moderate: Known from the nearby Prado Basin and Chino Hills State Park. Cover is sparse for this species in the project area but species likely uses the project area as a movement corridor and possibly even for foraging.
<i>Neotoma lepida intermedia</i>	San Diego desert woodrat	Fed: none Calif: CSC MSHCP: covered	Arid shrublands, esp. around rocky outcrops & crevices; cismontane Calif from San Luis Obispo to San Diego Co, and NW Baja Calif. Year-around	Not Likely to Occur. No suitable habitat.
<i>Nyctinomops femorosaccus</i>	Pocketed free-tailed bat	Fed: none Calif: CSC MSHCP: none	Variety of arid areas in southern California, including pine-juniper woodlands, desert scrub, palm oasis, desert wash, desert riparian; rocky areas with high cliffs	High. This species has been observed foraging over the nearby USACE Reach 9 Phase 2A project and suitable roosting habitat is present within the project area.
<i>Perognathus longimembris brevinasus</i>	Los Angeles pocket mouse	Fed: none Calif: CSC MSHCP: covered (addl. survey)	Open shrublands, grasslands; often sandy alluvial benches; S Calif. valleys, LA, SW San Bernardino and W Riverside Cos. Year-around (?)	Low. Low: No records exist for the area but suitable occurs within the project area..
<i>Sylvilagus bachmani</i>	Brush rabbit	Fed: none Calif: none MSHCP: covered	Dense shrublands (as cover); largely feeds on grasses; West coast (W Washington through Baja Calif.). Year-around	Low: Although this species was recently identified at the nearby USACE Auxiliary Dike project, the project area supports only marginal habitat.
<i>Myotis yumanensis</i>	Yuma myotis	Fed: none Calif: none MSHCP: none	Variety of wooded habitats in southern California, including riparian woodlands and coniferous forests;	High. This species has been documented roosting at the Reach 9 Phase 2B project site and suitable roosting habitat is present within the project area.

- Present: Species was observed on site or in the same watershed (aquatic species only) during a site visit or recent focused survey, or population has been acknowledged by CDFW or USFWS.
- High: Habitat (including soils) for the species occurs on site and a known occurrence occurs within 5 miles of the site within the past 20 years.
- Moderate: Habitat (including soils) for the species occurs on site and a known occurrence occurs within the database search, but not within 5 miles of the site or within the past 20 years; or a known occurrence occurs within 5 miles of the

site and within the past 20 years and marginal or limited amounts of habitat occurs on site; or the species' range includes the geographic area and suitable habitat exists.

- **Low:** Limited habitat for the species occurs on site and no known occurrences were found within the database search and the species' range includes the geographic area.
- **Not Likely To Occur:** Habitat requirements strongly associated with the species (including vegetation and soils) do not occur within the survey area or the known range of the species does not include the survey area.

References and notes

Barbour & Davis 1969 (bats); Calif. Dept. of Fish & Game 2009; California Natural Diversity Data Base 2009; Garrett & Dunn 1981; Grinnell and Miller 1943; Hall 1981; Hickman 1993; Ingles 1965; Jennings and Hayes 1994; Munz 1974; Remsen 1978; Stebbins 1985; Tibor 2001; Williams 1976; Zeiner et al. 1988, 1990a, 1990b.

Status Designations

Federal designations (US Fish and Wildlife Service). Note that some agencies, but not FWS, continue to use "SOC" as a federal status designation. Until 1996, FWS maintained a list of "category 2 candidates," described as species of concern, but for which insufficient data were available to support listing. This list is no longer maintained and FWS has no "SOC" category.

END: Federally listed, endangered.

THR: Federally listed, threatened.

PROP: Proposed for the federal status shown.

CAND: Candidate for federal listing; sufficient data are available to support listing, but not yet listed.

None: Not designated.

State designations (California Dept. of Fish and Game):

END: State listed, endangered.

THR: State listed, threatened.

FP: State fully protected.

None: Not designated.

Special Status Species Descriptions with the Potential to Occur in the Project Area

Federal and State Listed Species

Santa Ana Sucker FT

The Santa Ana sucker is federally threatened, a California species of special concern, and a Western Riverside MSHCP covered species. The Santa Ana sucker historically occurred in small, shallow, low-elevation streams in the Los Angeles, San Gabriel, and Santa Ana River systems (Swift et al., 1993). They also historically occurred in the upper Santa Ana River, on Cajon and City Creeks in the foothills of the San Bernardino Mountains, and in Santiago Creek in the foothills of the Santa Ana Mountains (Moyle and others 1995). Currently, the Santa Ana sucker is restricted to 3 noncontiguous populations: the lower Big Tujunga Creek, the East, West and North Forks of the San Gabriel River and the lower and middle Santa Ana River (U.S. Fish and Wildlife Service 2000). Introduced populations are present in the Santa Clara River and tributaries (Sespe Creek, Piru Creek, and San Francisquito Creek). Hybridization with the Owens sucker had been a problem in the Sespe Creek and lower Santa Clara River populations. The Santa Ana sucker is known from patches throughout the Santa Ana River where habitat is suitable. Most populations have been found where the substrate is sandy or gravelly. Critical habitat was re-designated for the species in 2010. This most recent modification to designated critical habitat includes a total of approximately 9,331 acres located within three units (Units 1-3). Unit 1 is located along portions of the Santa Ana River and is further divided into three separate units (Subunits A-C). Unit 2 includes portions of the San Gabriel River and Unit 3 encompasses sections of Gold Canyon, Big Tujunga Wash, Delta Canyon, and Stone Canyon. The entire project area falls within critical habitat Subunit 1C (Lower Santa Ana River). This subunit totals approximately 767 acres and is located near the City of Corona in Riverside County and the cities of Anaheim and Yorba Linda in Orange County. Approximately 10.7 miles of the Santa Ana River's main stem is included in this subunit. This reach spans from the Prado Dam outlet in Riverside County downstream to roughly 0.6 miles downstream of the SR-90 (Imperial Highway) Bridge in Orange County. Water flows into Subunit 1C are regulated by releases from Prado Dam, a structure that has altered the hydrology of the system, resulting in fluctuating waters (PCE 1) and sediment (PCE 2) releases. Habitat within this subunit has also been impacted by the construction of

several bridges spanning the Santa Ana River. Due to the lack of perennial flows within the project area and suitable substrate within Temescal Wash this species has a low potential.

Swainson's hawk ST

The Swainson's hawk is listed as State threatened and is a Western Riverside MSHCP covered species. Swainson's hawk inhabits grasslands, sage-steppe plains, and agricultural regions of western North America during the breeding season, and winters in grassland and agricultural regions from Central Mexico to southern South America (Bradbury and others in prep., England and others, 1997; Woodbridge and others, 1995a). The North American breeding range extends north from California to British Columbia east of the Sierra Nevada and Cascade Ranges, east to Saskatchewan, and south to northern Mexico. Several disjunct populations occur throughout the breeding range, including populations in Alaska, western Missouri, and the Sacramento and San Joaquin Valleys of California (England and others, 1997). This species occurs in southern California as a rare to uncommon transient with breeding mostly confined to valleys in the northern interior of the state. Along the coast, the Swainson's hawk is a rare spring and fall migrant. Swainson's hawks have been observed on several occasions in the Prado Basin during spring migration and can reasonably be expected to forage within the project area. Nesting habitat is present throughout the Prado Basin and in the Project area but they have not nesting in the region in recent years and are not expected to in the future. There is a moderate potential for this species to occur in the project area.

Southwestern willow flycatcher FE, SE

The southwestern willow flycatcher is both federally and state endangered and is a Western Riverside MSHCP covered species. The willow flycatcher species is a riparian obligate that is present in the United States only during the summer months. The historic breeding range for southwestern willow flycatcher included southern California, much of Arizona and New Mexico, western Texas, southwestern Colorado, southern Nevada and Utah, and northern portions of Sonora and Baja California, Mexico (Unitt, 1987). Currently, breeding is only known from southern California, extreme southern Nevada, Arizona, New Mexico, and western Texas (Browning, 1993; Hubbard, 1987; McKernan and Braden, 1998; Sedgwick, 2000; Unitt, 1987). This subspecies typically requires a relatively complex vegetative structure that includes flowing or open water (occasionally very moist soils that support insect breeding may suffice), a moderate to tall canopy (i.e. young, regenerating vegetation is not favored), open areas for foraging (especially for males), and areas where the canopy is separated from an understory (the shaded, open region favored by females for foraging). The study area includes lands that are designated critical habitat for the flycatcher. The primary constituent elements for the flycatcher are thickets of riparian shrubs and small trees with adjacent surface water such as willows, cottonwoods, mulefat, and other wetland plants. The surface water must be available from May to September during breeding season (OCWD 2018).

In southern California, this subspecies is a very rare and local summer resident that is known to breed at very few locations. Documented breeding sites in the general region include the San Bernardino Mountains to the east, the Mojave River to the northeast, and the Santa Clara River to the northwest (USFWS, 2002). On a more local scale, the nearby Prado Basin has in recent years harbored the species in small numbers and nesting has been documented as recently as 2007. Since the species was first recorded in the Prado Basin in 1987, up to nine territorial (i.e. adult male) southwestern willow flycatchers have been reported between 1992 through 2006 (Pike, 1992, 1995, 1997, 1999, 2003, 2006). Individuals have been observed in the Prado Basin as early as late April and early May (Pike et al., 2005). Willow flycatchers were observed at four locations along the edge of Prado Basin by Lynn Stafford of Aspen Environmental Group while monitoring construction activities in 2005. Nesting

flycatchers were also observed by Stafford in 2007 north of the borrow site for the nearby Auxiliary Dike Project, located approximately 1.25 miles east of the proposed project area (USACE, 2010). This is likely the same nesting location documented by OCWD in 2007. Subsequent surveys along the SAR conducted annually by OCWD did not result in positive detections. All known flycatcher territories within or near the Prado Basin have been located in proximity to surface water, which is consistent with the biology of the species (Pike et al., 2005). Additionally, Pike et al. (2005) report that territories in the Prado Basin have incorporated overgrown clearings with at least a few moderately tall, often dense willow trees. These habitat features, as mentioned above, are thought to be favored for foraging. Breeding willow flycatchers have been documented primarily in the southern portions of the Prado Basin, where 19 of 29 nests occurring throughout the basin were documented between 1996 and 2004 (Pike et al., 2005). Critical habitat for southwestern willow flycatcher was designated in 2013 (USFWS, 2013). The project area includes 3.9 acres of critical habitat.

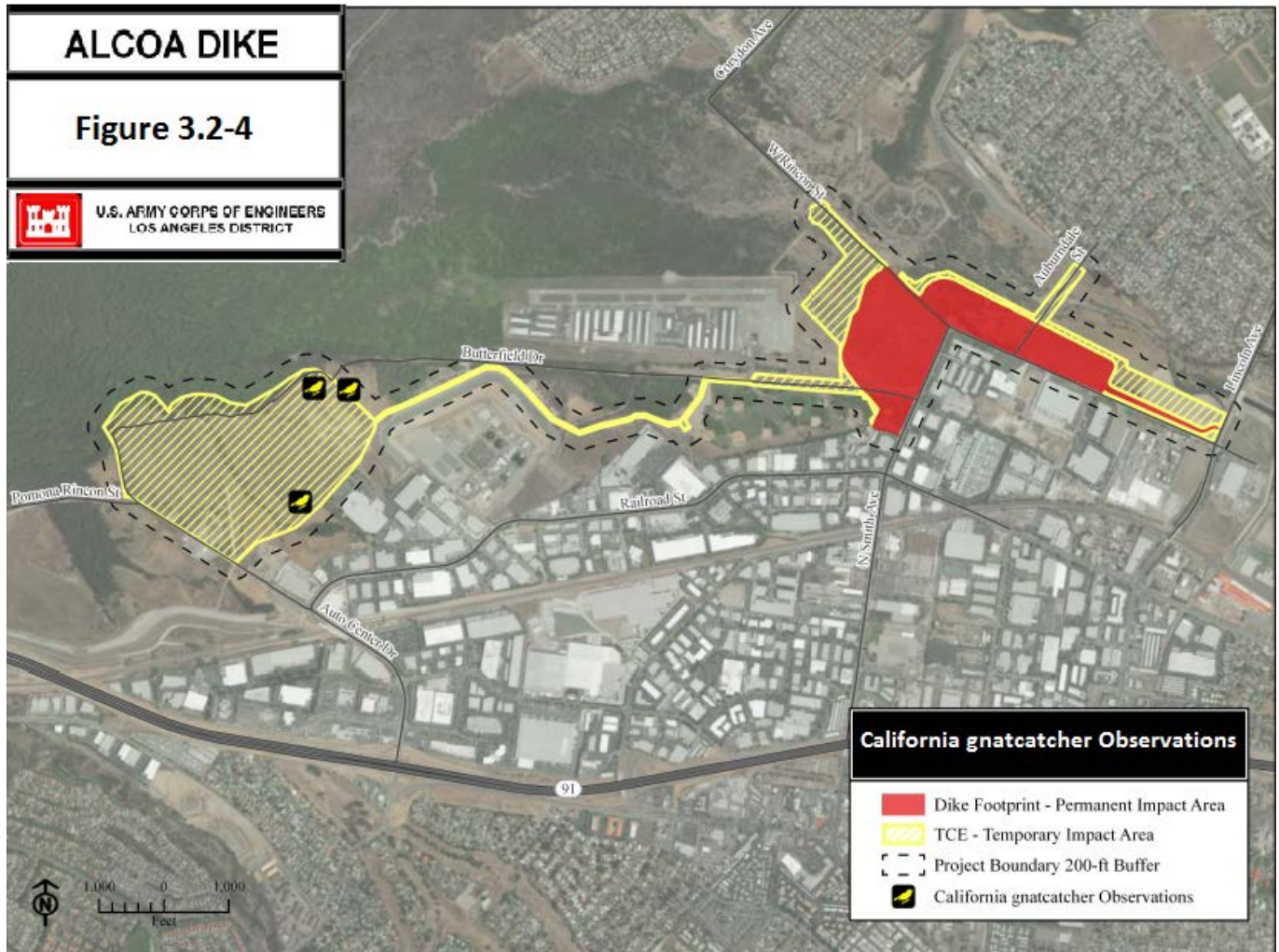
Several factors contribute to the limited potential for willow flycatcher breeding and nesting activities in the project area, including the narrow breadth of the riparian corridor through the area, patchiness of optimal breeding habitat, narrow or absent buffer, and proximity to human development. However, the nearby (historical) presence of southwestern willow flycatchers makes the project area a potential location for transient use, including more focused use for foraging and/or dispersal. If the Prado Basin continues to harbor a breeding population of the subspecies, it is probable that the project area will occasionally support individuals; however, breeding potential would remain limited. Therefore, there is a low to moderate potential for this species to occur.

Coastal California gnatcatcher FT

The coastal California gnatcatcher is listed as federally threatened and is a Western Riverside MSHCP covered species. The coastal California gnatcatcher is primarily restricted to coastal sage scrub habitats of coastal Southern California and northern Baja California. This subspecies sometimes occurs in other habitats adjacent to coastal sage scrub, including grasslands, chaparral, and riparian habitat. Although breeding territories have been reported in non-sage scrub habitats, these habitats are most commonly used during nonbreeding seasons for foraging and/or dispersal (Atwood, 1990; Campbell et al., 1998; Rotenberry and Scott, 1998). In California, coastal California gnatcatcher is a year-round resident of scrub-dominated plant communities from southern Ventura County southward through Los Angeles, Orange, San Bernardino, Riverside, and San Diego counties (Atwood, 1980). This species as shown in figure 3.2-4 was recorded within the borrow site in 2017 (2017 SAWA) and is known to occur in eight other surrounding USGS quads including locations in the Chino Hills and Santa Ana Mountains. Marginally suitable coastal sage scrub habitat is present within the borrow site but is not present within the dike footprint. This species is present within the borrow site however nesting has not yet been confirmed.

Final designated critical habitat for coastal California gnatcatcher includes approximately 197,303 acres in San Diego, Orange, Riverside, San Bernardino, Los Angeles, and Ventura Counties. The latest revised designation constitutes a reduction of 298,492 acres from the revised 2003 designation. Within the latest revision, approximately 159,737 of the acres reduced represent excluded essential habitat. Section 4(b)(2) of the Endangered Species Act (ESA) provides for the exclusion of areas from critical habitat designation if it is determined that the benefits of exclusion outweigh the benefits of specifying a particular area as critical habitat, unless the failure to designate the area as critical habitat will result in the extinction of the species. Accordingly, with the implementation of the Western Riverside County MSHCP, USFWS determined that the areas included under the plan would be subjected to long-term protection and conservation that provides equivalent or greater conservation benefit to the coastal

California gnatcatcher than would likely result from including these areas in the final designation, and the exclusion of these lands would not further jeopardize the continued existence of the subspecies. The exclusion of these areas from the final designation does not dismiss or lessen the value of these areas to the overall conservation of this subspecies. Rather, the implementation of USFWS-approved plans, such as the Western Riverside County MSHCP, is typically directed at the long-term conservation at targeted species.

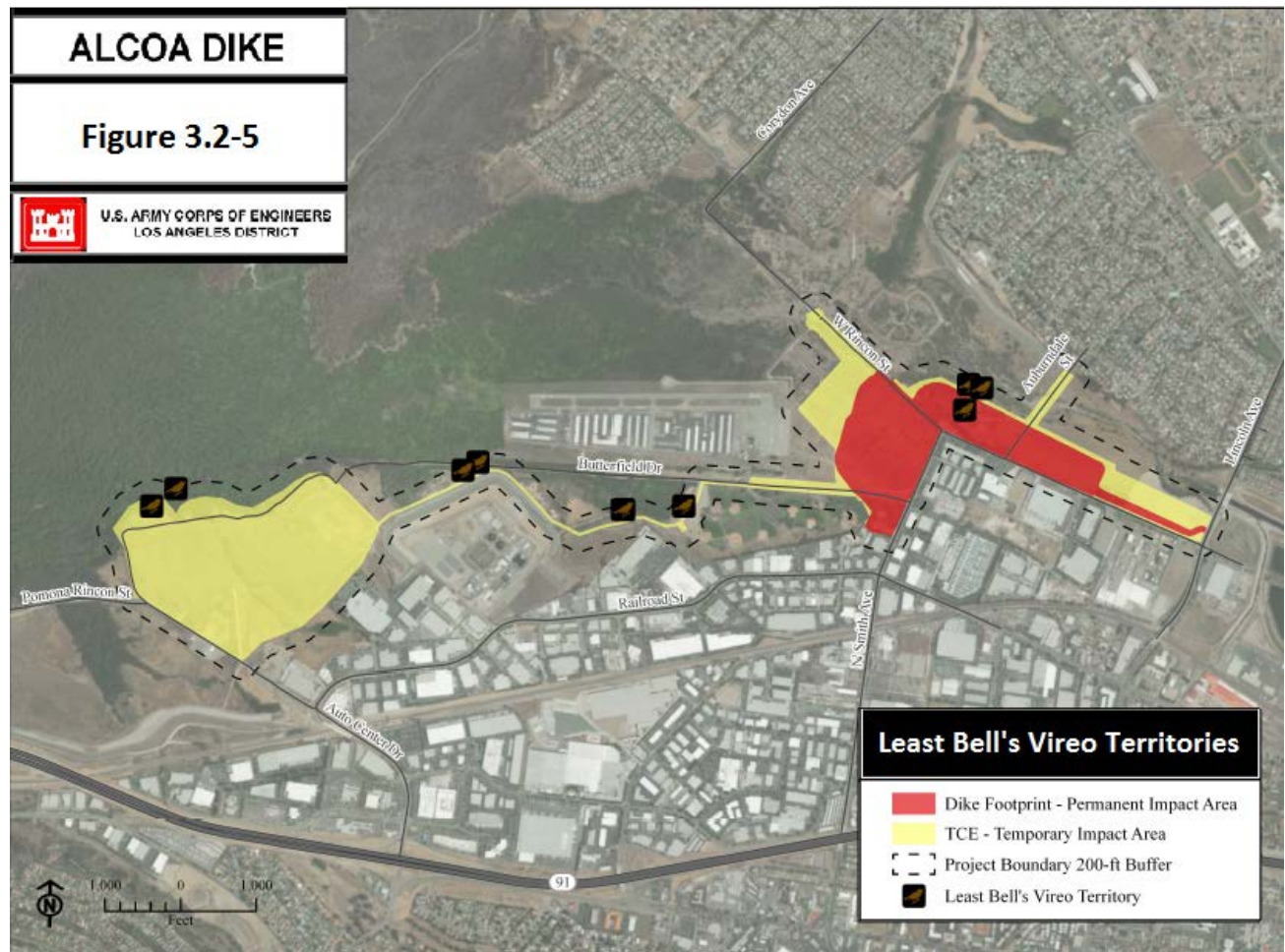


Least Bell's vireo FE, SE

The least Bell's vireo is state and federally listed as endangered and is a Western Riverside MSHCP covered species. This species was historically common in lowland riparian habitat, ranging from coastal Southern California through the Sacramento and San Joaquin valleys with scattered populations in the Coast Ranges, Sierra Nevada, Mojave Desert, and Owens and Death valleys (Kus 2002). This species currently occurs only in riparian woodlands (especially Southern Cottonwood Willow Riparian Forest, Southern Willow Scrub, and Mule Fat Scrub) in Southern California, with the majority of breeding pairs in San Diego, Santa Barbara, and Riverside counties and smaller populations in Los Angeles, San

Bernardino, and Imperial counties (Service 1998) with approximately half of the current population occurring within drainages on Camp Pendleton in northwestern San Diego County.

This species has been recorded breeding in the proposed project area during surveys conducted in spring 2017 and in previous surveys in 2016 (Figure 3.2-5). SAWA (2017) reports 9 vireo occurrences within 200 feet of the project area, including two that are within the project area. A total of 549 territories were documented within the Prado Basin in 2017 (Bonnie Johnson, 2017 as cited in OCWD, 2017). An additional 1,208 territories were documented beyond the Prado Basin within the Santa Ana River watershed (SAWA, 2017). Critical habitat for least Bell's vireo was designated in 1994 (USFWS, 1994). The project area includes 185.9 acres of critical habitat.



Western yellow-billed cuckoo, FT, SE

The western yellow-billed cuckoo is federally listed as threatened (Western DPS) and state listed as endangered. This species is covered under the Western Riverside MSHCP. It inhabits extensive riparian woodlands, especially those dominated by cottonwood and willow. It is a very rare and localized summer resident in California with only a few breeding stations for this species in the state are currently known. From one to several territorial cuckoos have been present in the Prado Basin in most years (as of the preparation of the 2001 SEIS/EIR) since 1983 (USACE, 2001). Historically pairs have been occasionally

observed in the Basin. No western yellow-billed cuckoos have been observed in the project area however they were observed as recently as 2011 within Prado Basin (CDFW, 2017). Marginally suitable habitat is present within and adjacent to the project area. There is a possibility that this species may pass through or forage in the project area but is not likely to nest there. Critical habitat for western yellow-billed cuckoo was proposed in 2014 (USFWS, 2014). The project area includes 22.6 acres of proposed critical habitat.

Critical habitat for the western yellow-billed cuckoo was proposed in 2014. Presently, the current ruling is being revised by USFWS. The final ruling is expected sometime in 2018. Based on the ruling it appears that critical habitat for the cuckoo would be proposed within the study area.

Riverside fairy shrimp, FE

The Riverside fairy shrimp is federally listed as endangered. This species is historically known from Riverside, Orange, and San Diego Counties in southern California and northwestern Baja California, Mexico but has also been documented in Ventura County (USFWS, 2008). Restricted to vernal pools and other non-vegetated ephemeral pools (USFWS, 2008)

The Riverside fairy shrimp (*Streptocephalus woottoni*) is a small aquatic crustacean in the order Anostraca, first identified in 1985 (Eng et al. 1990) based on specimens collected from between Murrieta Golf Course and California Highway 79 in Riverside County. Riverside fairy shrimp feed on algae, bacteria, protozoa, rotifers, and bits of detritus (Eng et al. 1990; Eriksen and Belk 1999). Male Riverside fairy shrimp are distinguished from other fairy shrimp species primarily by the second pair of antennae (Eriksen and Belk 1999). The females carry their cysts (i.e., eggs) in an oval or elongate ventral brood sac (Eriksen and Belk 1999). There are no known records for this species in the project area or surrounding areas; the project area is located within the known geographic distribution for this species however no indication of vernal pools or other suitable seasonal pools were identified in the project area.

Vernal pool fairy shrimp, FT

Vernal pool fairy shrimp is federally listed as threatened. This species is endemic to California and the Agate Desert of southern Oregon and is generally restricted to cool-water vernal pools and other non-vegetated ephemeral pools (USFWS, 2007). The Vernal pool fairy shrimp is a small aquatic crustacean in the order Anostraca (USFWS, 2007)

There are no known records for this species in the project area or surrounding areas; the project area is located within the known geographic distribution for this species however no indication of vernal pools or other suitable seasonal pools were identified in the project area.

California red-legged frog, FT

The California red-legged frog was listed as federally threatened by the USFWS on May 23, 1996 (61 FR 25813-25833). Critical habitat was designated on April 13, 2006 (71 FR 19243-19346) and revised on September 16, 2008 (73 FR 53491-53680). This taxon is also a CDFW Species of Special Concern.

This species typically occurs in or near quiet permanent water of streams, marshes, ponds, lakes, and other quiet bodies of water. Individuals may range far from water along riparian corridors and in damp

thickets and forests. California red-legged frog is one of two species of red-legged frog (*R. draytonii*) occurring in California. This subspecies is distinguishable by rougher skin, shorter limbs, and smaller eyes (Stebbins, 2003). California red-legged frog breeds from November to March, although earlier breeding has been recorded in southern localities (Storer, 1925). Females deposit egg masses on emergent vegetation so that the masses float on the surface of the water (Hayes and Miyamoto, 1984). The diet for this subspecies is highly variable, with tadpoles consuming algae and adults primarily feeding on invertebrates (Jennings et al., 1992; Hayes and Tennant, 1985). Some larger adults will prey on vertebrates, such as Pacific treefrogs (*Pseudacris regilla*) and California mice (*Peromyscus californicus*) (Hayes and Tennant, 1985). Although not documented from the project area, this species was historically present within the Prado Basin. The project area is located within of the known geographic distribution for this species and suitable but limited habitat occurs within portions of the project area.

State Fully Protected Species

Golden Eagle FP

The golden eagle (*Aquila chrysaetos*) is a CDFW Fully-Protected species and is covered under the Western Riverside MSHCP. The breeding range for golden eagle extends across western North America from Alaska south to northern Baja California and east to central Tennessee, Pennsylvania, and Maine (AOU, 1998; Johnsgard, 1990). This species winters in North America from southern Alaska south through its western breeding range (Johnsgard, 1990). Throughout California, with the exception of the floor of the Central Valley, golden eagles are an uncommon permanent resident and migrant. It is considered more common in southern California than in the northern half of the state. This species is known to nest within the Prado Basin and has been observed within the nearby USACE Auxiliary Dike Project area. Marginal nesting habitat exists near the project area and species may fly over or forage within the project area. There is a moderate potential for this species to occur in the project area.

White-tailed kite FP

The white-tailed kite (*Elanus leucurus*) is a CDFW Fully Protected Species and is covered under the Western Riverside MSHCP. The white-tailed kite is a resident in California, southern Texas, Washington, Oregon, and Florida. It also occurs as a resident from Mexico into parts of South America (Dunk, 1995). In California, this species inhabits coastal and valley lowlands and is typically found in agricultural areas. It has increased population numbers and range in recent decades (Zeiner et al, 1990a). This species occurs regularly in habitat of the nearby USACE Auxiliary Dike Project area. Breeding is strongly suspected though not confirmed in the area. The white-tailed kite is a known year round visitor. There is a high potential for this species to occur in the project area.

American Peregrine Falcon, FP

The peregrine falcon is a California Fully Protected species and has a worldwide distribution that is more extensive than that of any other bird. In North America, the peregrine falcon breeds from Alaska to Labrador, southward to Baja California and other parts of northern Mexico, and east across central Arizona through Alabama. Its distribution is patchy in North America, and populations in the eastern United States are still chiefly in urban areas (AOU, 1998; White et al., 2002). Peregrine falcons in

general use a large variety of open habitats for foraging, including tundra, marshes, seacoasts, savannahs, grasslands, meadows, open woodlands, and agricultural areas. Sites are often located near rivers or lakes (AOU, 1998; Brown, 1999; Snyder, 1991). Riparian areas, as well as coastal and inland wetlands, are also important habitats year-round for this species. The species breeds mostly in woodland, forest, and coastal habitats (Zeiner et al., 1990a; Brown, 1999).

In California, the American peregrine falcon is an uncommon breeder or winter migrant throughout much of the state. It is absent from desert areas (Zeiner et al., 1990a). Active nests have been documented along the coast north of Santa Barbara, in the Sierra Nevada, and in other mountains of northern California. As a transient species, the American peregrine falcon may occur almost anywhere that suitable habitat is present (Garrett and Dunn, 1981).

The diet of the American peregrine falcon primarily consists of birds that, while most are pigeon-sized, can be as small as hummingbirds or as large as small geese (White et al., 2002). Other prey species include jays, flickers, meadowlarks, starlings, woodpeckers, shorebirds, and other readily available birds. The American peregrine falcon may feed on large numbers of rodents when present (Brown, 1999).

Breeding requires cliffs or suitable surrogates that are close to preferred foraging areas. Nests are typically located in cliffs between 50 and 200 meters (164 to 656 feet) tall that are prominent in the landscape. American peregrine falcons have also been known to nest in trees and on small outcrops. Tall buildings, bridges, or other tall man-made structures are also suitable for nesting (White et al., 2002). The nest site usually provides a panoramic view of open country and often overlooks water. It is always associated with an abundance of avian prey, even in an urban setting. A cliff or building nest site may be used for many years (Brown, 1999). The nest site itself usually consists of a rounded depression or scrape with accumulated debris that is occasionally lined with grass (Call, 1978). Higher-quality nest sites confer greater protection from the elements and have greater breeding success (Olsen and Olsen, 1989).

This species occurs as a rare and transient winter visitor to the Prado Basin. No nesting habitat occurs within the project area.

California Species of Special Concern, CDFW Special Animals and Western Riverside MSHCP Species

Birds

Sharp-shinned hawk, CSC, MSHCP

The sharp-shinned hawk is a CDFW watch list species. It is also covered under the MSHCP. This species is not federally or State listed as threatened or endangered. In California, sharp-shinned hawks breed throughout the state, including the mountains of southern California, but the majority probably breed in the northern half of the state (Small, 1994). Sharp-shinned hawks in California typically nest in coniferous forests, often within riparian areas or on north-facing slopes. Nest stands are typically dense patches of small-diameter trees; these patches are cool, moist, and well shaded with little groundcover. Nest stands often occur near water and are typically in close proximity to open areas (Zeiner et al., 1990a).

Sharp-shinned hawks are partial migrants over much of their North American range. The breeding season is mid-April to mid-July, with a single clutch of four-five eggs. The nest is a large, well-built structure of twigs, typically located in a tree crotch 10–60 feet (3–18 meters) high. Eggs hatch after 30–35 days of incubation by both sexes, after which the nestlings are tended by the female, while the male procures food. Young begin to acquire feathers at 14 days, and fly at about 23 days. Young sharp-shinned hawks are dependent upon their parents up to 28 days after fledging. Small birds are the main food taken, followed by small mammals and, occasionally, large insects. Typically, sharp-shinned hawks remain motionless on perches, from where they can dart out to surprise prey. Sharp-shinned hawks forage in a wide variety of habitats, including forest canopy and subcanopy, shorelines, urban and suburban settings, smaller forest patches, and transitional habitats. This species is known from within the Prado Basin and was observed flying over the project area. Nesting habitat is available within and near the project area; however, no active nests have been found or reported.

Grasshopper Sparrow, CSC, MSHCP

Grasshopper sparrow is a California Species of Special Concern and is covered under the Western Riverside MSHCP. The grasshopper sparrow (*Ammodramus savannarum*) is a neotropical migrant that breeds from eastern Washington eastward to southern Maine, and southward to southern California, northernmost Mexico, and Virginia. It is a breeding resident east of the Rocky Mountains from Canada to the southern states and the wintering ranges south into Florida and Mexico. Grasshopper sparrows winter from California to North Carolina and south through Central America to Costa Rica (County of Riverside 2008). It is a year-round resident in the western states and in the southern portions of the southeastern states (County of Riverside 2008). In southern California, the grasshopper sparrow occurs in appropriate habitats west of the deserts (Garrett and Dunn 1981).

Grasshopper sparrows in California breed (and primarily winter) on slopes and mesas containing grasslands of varying compositions (Grinnell and Miller 1944; Garrett and Dunn 1981). The grasshopper sparrow uses dense, dry, or well-drained grassland, especially native grassland with a mix of grasses and forbs for foraging and nesting, and requires fairly continuous native grassland areas with occasional taller grasses, forbs, or shrubs for song perches (Garrett and Dunn 1981). Grasshopper sparrows tend to avoid grassland areas with extensive shrub cover and the presence of native grasses is less important than the absence of trees (Smith 1963; County of Riverside 2008). They may also occur in fallow agricultural fields, especially those periodically planted with oats and barley.

Grasshopper sparrow has been reported from a previously restored borrow site just west of the project area. They have a high potential to forage and nest within the borrow area but are not expected to nest within the dike footprint.

Great Blue Heron, SA, MSHCP

The great blue heron is a CDFW Special Animal. It is also covered under the MSHCP. This species is not federally or State listed as threatened or endangered. This species is fairly common all year throughout most of California. Few rookeries are found in southern California, but many are scattered throughout northern California. Knowledge of specific rookery locations is incomplete (Mallette, 1972; Belluomini,

1978; Garrett and Dunn, 1981). Great blue herons are most commonly found in shallow estuaries and fresh or saline emergent wetlands. However, they also can occur along riverine and rocky marine shores, in croplands, pastures, and in mountains above foothills.

This species is the largest and most widespread heron in North America. Great blue herons are large, grayish birds with a long “S”-shaped neck, long legs, and a long, thick bill. They are typically distinguishable by a white crown stripe surrounded by a black plume extending from behind the eye to the back of the neck. Although this species will occasionally eat small rodents, amphibians, reptiles, insects, and birds, its diet is dominated by fish (nearly 75%) (Cogswell, 1977). When hunting, great blue herons stand motionless, or walk slowly, in shallow water, or less commonly, open fields and grasp prey with their bill, rarely impaling the intended target. This species typically roosts in secluded, tall trees. For nesting, secluded groves of tall trees near shallow water feeding areas are preferred; however, feeding areas may be as far as ten miles away (Krebs, 1974). Great blue herons usually arrive to breeding ground in February and courtship and nest building begin shortly thereafter. Breeding territories are small, usually including only the nest site and immediately surrounding areas (Cottrille and Cottrille, 1958; Mock, 1976). However, feeding territories may be defended vigorously, especially during the non-breeding season (Palmer, 1962; Krebs, 1974; Kushlan, 1976). Suitable habitat for rookery sites does not occur; however, foraging habitat occurs, within the Project area.

Burrowing Owl, CSC, MSHCP

The burrowing owl is covered under the Western Riverside MSHCP and is a CDFW Species of Special Concern. This species breeds from southern interior British Columbia, southern Alberta, southern Saskatchewan, and southern Manitoba, south through eastern Washington, central Oregon, and California to Baja California, east to western Minnesota, northwestern Iowa, eastern Nebraska, central Kansas, Oklahoma, eastern Texas, and Louisiana, the southern portion of Florida, and south to central Mexico. The species is also locally distributed throughout suitable habitat in Central and South America to Tierra del Fuego, and in Cuba, Hispaniola, the northern Lesser Antilles, Bahama Islands, and in the Pacific Ocean off the west coast of Mexico (County of Riverside, 2008 as cited in USACE and CDFW, 2016). The western subspecies, western burrowing owl, occurs throughout North and Central America west of the eastern edge of the Great Plains south to Panama (County of Riverside, 2008). The winter range of the western burrowing owl is much the same as the breeding range, except that most individuals apparently vacate the northern areas of the Great Plains and the Great Basin (County of Riverside, 2008). A burrowing owl wintered within the project area during the winter of 2017. There is a high potential that burrowing owl could be present within the project area in the future.

American Bittern, SA, MSHCP

The American bittern is CDFW Special Animal and is covered under the Western Riverside MSHCP. The American bittern breeds from southeastern Alaska, Manitoba, and Newfoundland, and south to California, New Mexico, Arkansas, and Carolinas. The American bittern inhabits dense freshwater marshes and extensive wet meadows. They prefer wetlands with thick cattail and bulrush, mixed with areas of open water. In the winter, they can be found in a wider range of habitats, including flooded willow and salt marshes.

The American bittern inhabits dense freshwater marshes and extensive wet meadows. They prefer wetlands with thick cattail and bulrush, mixed with areas of open water. In the winter, they can be found in a wider range of habitats, including flooded willow and salt marshes. This species builds a nest platform of marsh vegetation and lines it with grasses. The female incubates the 2-6 eggs for about 24 days. The young eat partly digested food regurgitated by the female. The young may leave the nest after about 1-2 weeks, however, they tend to stay close by and are fed until they are about four weeks old. Common prey items include fish and other aquatic life. Bitterns also eat insects, amphibians, crayfish, and small mammals. This species is known from the Prado Basin and suitable habitat exists within the Project area. Species is likely to travel through and use the area.

Ferruginous Hawk, CSC, MSHCP

The ferruginous hawk is a California Species of Special Concern and is covered under the Western Riverside MSHCP. This species occurs throughout western North America from southernmost Canada between the Great Plains and Rocky Mountains, south to northern Arizona and New Mexico. This species breeds from southeast Alberta and extreme southwest Manitoba south to the northwest corner of Texas, west to the Great Basin, Columbia River Basin regions of eastern Oregon and southeast Washington. It was more recently discovered breeding in California (Small 1994). The ferruginous hawk most commonly winters from southern California, Colorado, Arizona, and New Mexico to northern Texas. Northern populations are completely migratory, while birds from southern breeding locations appear to migrate short distances or to be sedentary (Bechard and Schmutz 1995). The ferruginous hawk is an uncommon winter resident and migrant at lower elevations and open grasslands in the Modoc Plateau, Central Valley, and Coast Ranges of California (Polite and Pratt 1999). The ferruginous hawk forages in open grasslands, agriculture (primarily grazing lands), sagebrush flats, desert scrub, and fringes of pinyon-juniper habitats (Polite and Pratt 1999). Birds seem to show a strong preference for elevated nest sites (boulders, creek banks, knolls, low cliffs, buttes, trees, large shrubs, utility structures, and haystacks), but will nest on nearly level ground when elevated sites are absent and when located far from human activities (Bechard and Schmutz 1995). Their winter range consists of open terrain from grassland to desert. West of the Rocky Mountains, grassland and arid areas of California, Arizona, and New Mexico are used heavily where prairie dogs, lagomorphs (rabbits and hares), ground squirrels, or pocket gophers are abundant. Amphibians, reptiles, and birds are occasionally taken. Hunting occurs from early morning to late afternoon and follows one of four types of pursuits: still hunting, short-distance strikes, aerial hunting, and hovering (Bechard and Schmutz, 1995; NatureServe, 2008).

Nest-building generally occurs in March in southern to mid-latitudes and birds occur on breeding areas from late February through early October (NatureServe, 2008). In California, it has been reported that this species prefers native grassland and shrubland habitats over cropland, and areas with no perches for their nest sites (Janes, 1985). Clutch size for this species is usually two to four with an incubation period of about 32 to 33 days. Young fledge in 35 to 50 days (NatureServe, 2008).

Although this species does not breed in southern California, it has been reported as a rare winter visitor in the Prado Basin; may forage within or fly over the project area.

Turkey Vulture, MSHCP

The turkey vulture is covered under the Western Riverside MSHCP and is known from throughout the continental US and southern Canada and through South America. This species winters throughout California west of the Sierra Nevada crest as well as in the southeastern United States, Mexico, and the neotropical region (Kirk and Mossman, 1998).

The turkey vulture forages widely over many habitats. It roosts communally in open trees, and nests on cliffs or steep mountainsides in sheltered shrubby or rocky sites. Turkey vultures breed very locally in lowland, foothill, and mid-elevation habitats away from suburban/urban areas (Garrett and Dunn, 1981; Roberson and Tenney, 1993). In the west, they primarily nest in caves, protected rocky outcrops, or hollow logs, and sometimes in dense scrub. Large trees or cliff faces are required for roost sites because vultures need sufficient room for takeoff and sufficient protection from nocturnal predators (Kirk and Mossman, 1998). Breeding season of turkey vultures generally begins in April and can last as late as September. Females lay one to three eggs that are incubated by both parents for approximately 28-40 days. Both parents feed the nestlings until they fledge at 60-80 days. Turkey vulture primarily feed on carrion, but will sometimes kill and eat small young, injured, or weak animals. The diet is extremely varied and includes dead tadpoles, mammals, reptiles, birds and, occasionally, rotten fruit. They often forage over grasslands, savanna, or desert (Kirk and Mossman, 1998). This species is common in the area. There is no suitable nesting habitat within the Project area, however this species is known to fly through and forage in the area.

Northern Harrier, CSC, MSHCP

The northern harrier is a CDFW Species of Special Concern and is covered under the Western Riverside MSHCP. This species is found throughout the northern hemisphere. In the North America, they breed from Alaska and the southern Canadian provinces south to Baja California, New Mexico, Texas, Kansas, and North Carolina (Limas, 2001). Within California, there are historic breeding records for the northern harrier in the following counties: Siskiyou, Marin, Santa Clara, San Mateo, San Luis Obispo, Kern, Ventura, Mono, Los Angeles, Riverside, San Bernardino, Orange, and San Diego (CPIF, 2000).

The northern harrier breeds and forages in emergent wetlands and nearby open grasslands, and fallow fields. It also forages in agricultural fields and desert scrub. The northern harrier is a 16 to 24 inch long harrier with a wingspan of 38 to 48 inches. This bird relies on hearing as well as sight while hunting, and has an owl-like facial disk (Alsop III, 2001). Many California populations are residents, and many migrating harriers winter in California (CPIF, 2000). The northern harrier is predominately monogamous, but polygyny occurs when prey abundance is high. Nests are built on the ground. Clutch size averages five, and incubation lasts 30-32 days with nestlings fledging at 30-35 days. Hatching occurs from April through June (CPIF, 2000). Northern harriers primarily feed on small mammals, but will also take reptiles, amphibians, birds, and invertebrates. Predation on adults is rare; most predation occurs on nestlings and eggs. Predators include mammals such as coyotes, foxes, skunks, minks, raccoons, squirrels, and crows; birds such as ravens, crows, and owls; and reptiles such as snakes (CPIF, 2000). Although this species was not detected during 2017 surveys and previous surveys in 2010 and 2011, it has been recently recorded in project area. This species does not nest in the project area but may utilize the area for foraging.

Yellow Warbler, CSC, MSHCP

The yellow warbler is a CDFW Species of Special Concern and is covered under the Western Riverside MSHCP. The breeding range for yellow warblers of the yellow group of subspecies includes the Pacific coast from the northern limits of the boreal forests in Alaska and Canada south to the southern United States and northern Baja California. The winter range extends from the coasts of northern Mexico to northern South America (Lowther et al., 1999). Although this species is primarily a summer resident, some small winter populations remain in the lowlands of southern California (Garrett and Dunn, 1981).

In southern California, this species breeds in riparian woodlands situated within the lowlands and canyons (Garrett and Dunn, 1981; Lehman, 1994; Roberson and Tenney, 1993; Unitt, 1984). Suitable habitat typically consists of riparian forests containing sycamores, cottonwoods, willows, and/or alders (Stephenson and Calcarone, 1999). There is a considerable morphological variation within the *D. petechia* species. Of the three recognized groups of subspecies, only the “yellow” group breeds in North America. The “yellow” group is further divided into nine subspecies, which are distinguished by slight differences in plumage color and patterns of breast streaking in males (Lowther et al, 1999). The primary diet of yellow warblers consists of arthropods, such as bees, wasps, caterpillars, flies, beetles, and true bugs, which are usually gleaned from leaf surfaces; however, this subspecies will occasionally sally to capture prey in flight. Males typically forage higher in trees than females (Lowther et al, 1999). Yellow warblers migrate annually between breeding grounds in North America and wintering grounds in the neotropics and are highly territorial on both breeding and wintering grounds (Lowther et al, 1999). During migration, yellow warblers form flocks and will often join with flocks of other species, including warblers, vireos, and flycatchers. Although not detected in the project area this species was identified at the USACE Reach 9 Phase 2A project and the Alcoa Dike project area supports suitable nesting habitat as well.

California Horned Lark, CSC, MSHCP

The California horned lark is a CDFW Watch List Species that was removed from the Species of Special Concern list in 2008 and is covered under the Western Riverside MSHCP. This species is a resident throughout California from Humboldt County and the San Joaquin Valley south into northern Baja California, Mexico (NatureServe, 2009).

The California horned lark utilizes a variety of open habitats, usually in areas lacking large trees and shrubs. It is found in grasslands along the coast and in deserts near sea level, up to alpine dwarf-shrub habitat above the treeline (Zeiner et al, 1990a). The California horned lark mainly moves down from mountains in winter to flock in desert lowlands and other areas (Zeiner et al, 1990a). The California horned lark is a 16-cm long songbird with black “horns”, a pale yellow face and throat, a black bib, pale breast, and a black tail with white outer feathers (NatureServe, 2009). It breeds from March through July, and builds a nest on the ground. Clutch size is three to four on average (range two to five), and incubation lasts 10 to 14 days. Young fledge at 9 to 12 days (Zeiner et al, 1990a). This species feeds primarily on insects, snails, and spiders during the breeding season and will eat seeds and other plant material at other times (Zeiner et al, 1990a). Adults are preyed upon by falcons, and eggs and nestlings are prey for mammals and snakes (Zeiner et al, 1990a). Although this subspecies was not identified during surveys, it is regularly observed around the project area. Portions of the project area support suitable habitat and this subspecies may occur as a transient.

Merlin, CSC, MSHCP

The merlin is a State watch list species and is covered under the Western Riverside MSHCP. This falcon can be found throughout the Northern Hemisphere. Its winter range is located in California, New Mexico and northwestern Mexico. This species breeds in open country from open coniferous woodland to prairie, and occasionally in adjacent suburban areas. Winters in open woodland, grasslands, open cultivated fields, marshes, estuaries, and seacoasts. In general, they prefer a mix of low and medium-height vegetation with some trees, and avoid dense forests as well as treeless arid regions. During migration however, they will utilize almost any habitat.

The merlin does not build a nest, but instead takes over old nests of other raptors or crows. It sometimes nests on top of domed magpie nests rather than in the nest cavity. Males arrive to the breeding area before the females, usually returning to the same general area year after year. It generally lays 4-6 eggs per clutch. The eggs are laid at two-day intervals. Incubation lasts 25-32 days. At the end of the incubation period, the eggs hatch in intervals. This bird is an aerial forager and preys on other birds. This species is known from within the Prado Basin and may be seen flying over or foraging in the project area. No suitable nesting habitat within the project area.

Prairie Falcon, CSC, MSHCP

The prairie falcon is a CDFW Watch List Species that was removed from the Species of Special Concern list in 2008, and a USFWS Bird of Conservation Concern. This taxon is not federally or State listed as threatened or endangered. This species is an uncommon permanent resident that occurs throughout California with the exception of the humid northwest coastal belt (Small, 1994).

The prairie falcon occurs in a wide variety of habitats from annual grasslands to alpine meadows, but is most commonly associated with perennial grasslands, savannahs, rangelands, some agricultural fields, and desert scrub areas (CDFW, 2008). This species usually nests on sheltered cliff ledges overlooking open areas. This species is a medium-sized falcon with a dark brown cap and cheek and distinct dark mustache markings. Prairie falcons breed in mid-April on cliff edges or rock outcrops in open areas. The male rarely takes an active role in the incubation process; however, may provide food to the female during this time (Stephenson and Calcarone, 1999). Hatchlings are tended by both adults until fledging at roughly forty days (Baicich and Harrison, 1997). Prairie falcons prey primarily on small passerine birds; however, lizards, ground squirrels, and other small mammals are also consumed (Steenhof, 1998). This species utilizes two hunting strategies, including flushing a prey item while flying along a concealed route until the last moment and patrolling along long distances close to the ground until surprising and attacking a prey item (Dunne et al., 1988). This species is expected to fly through or forage in the project area. This species has been observed foraging in the nearby Puente/Chino Hills and Chino Hills State Park (Scott and Cooper, 1999). No nesting habitat occurs within the project area.

Yellow-breasted Chat, CSC, MSHCP

The yellow-breasted chat is a CDFW species of special concern and is covered under the Western Riverside MSHCP. This species is a widespread summer resident of eastern North America. In California, its range is primarily in northern California, and the taxon is scarce in central and southern California. However, a significant population occurs along the Lower Colorado River valley in southern California.

This species breeds in dense riparian thickets and brushy tangles in the vicinity of watercourses, primarily in the coastal lowlands (Garrett and Dunn, 1981). The species appears to be closely tied to streamside thickets of willows, mesquite, and mulefat with tangles of grapevines and other riparian species. Breeding season of the yellow-breasted chat generally begins in April or May and can last to August. Males arrive on the breeding grounds shortly before females in April–late May. Little is known about pair formation and territory establishment in this species. Females initiate nest construction, which begins shortly after pair formation. Eggs are typically laid May–July. Females lay three to six eggs and incubate them for 11–12 days; both parents feed the nestlings until they fledge at approximately 9 days. Prey items include a variety of arthropods, including beetles and weevils, true bugs, ants, bees, caterpillars, and spiders. They also eat fruit, especially blackberries (*Rubus* sp.), elderberries (*Sambucus* sp.), and wild grape (*Vitis* sp.). Yellow-breasted chats forage in dense thickets, gleaning off leaves and twigs. Although not observed within the project area this species was recently identified at the nearby USACE Reach 9, Phase 2A project and the project area supports suitable nesting habitat.

Loggerhead Shrike, CSC, MSHCP

The loggerhead shrike is a CDFW Species of Special Concern and is covered under the Western Riverside MSHCP. The breeding range of the loggerhead shrike includes Alberta, Saskatchewan, and Manitoba in Canada; the majority of the United States except the Pacific Northwest; and Mexico (Yosef, 1996).

The loggerhead shrike utilizes dry, open areas with sparse vegetation. It can be found in grasslands, pastures, agricultural fields, and orchards. It often perches on utility lines, fences, and posts. Loggerhead shrikes are common residents and winter visitors to the lowlands and foothills of California (Stephenson and Calcarone, 1999; Yosef, 1996). The loggerhead shrike is a large-headed bird with a hooked beak and whitish underparts. It breeds early; from late January or early February through July. The loggerhead shrike builds a well-hidden nest on a tree or shrub. Eggs are laid between March and June. The typical clutch size is five to six, and incubation lasts 15 to 17 days. Nestlings fledge at 16 to 20 days. Loggerhead shrikes eat small- to medium-sized animals, including arthropods, birds, amphibians, reptiles, and small mammals. They will also eat roadkill and carrion. Loggerhead shrikes often cache their prey by impaling it on plant spines or barbed-wire fences (Yosef, 1996; Alsop, 2001). Nest predation by feral cats, black-billed magpies, weasels, raccoons, and snakes have been recorded. Potential nest predators, including American crow, red-tailed hawk, and northern harrier, are mobbed by loggerhead shrikes (Yosef, 1996). Known to forage in upland habitats within the Prado Basin. This species has been observed at the nearby USACE Auxiliary Dike project. Suitable nesting habitat in project area is minimized by local disturbance from recreation and residential development.

Lincoln's Sparrow, CSC, MSHCP

Lincoln's sparrow is covered under the Western Riverside MSHCP. This species can be found across the US and Canada. In the western United States, the species' breeding range extends as far south as southern California and northern New Mexico, including the San Bernardino and San Jacinto Mountains (Small, 1994). The California breeding population that winters in the state inhabits the southern California lowlands and the San Joaquin Valley and foothills (Zeiner et al., 1990a). This species is associated with in wet, shrubby areas, usually above 3,000 feet. Lincoln's Sparrows are often found around the edges of

ponds and marshes, open wet meadows, or other forest clearings with dense shrub cover. Low willow cover with dense ground vegetation is especially preferred. During migration, they can be found in dense, moist thickets, and in the winter, they inhabit grassy, weedy, and brushy areas, and often near wetlands.

Lincoln's sparrows do not join flocks of their own species, but one or two are often found flocking with other sparrows in winter and during migration. These secretive birds feed on the ground under cover in dense blackberry tangles and other brush. Males defend territories and attract mates by singing. The nest is generally cryptic and well-concealed, located on the ground, often in very boggy sites, inside a low willow or birch shrub, with dense sedge cover. It is usually sunken into a depression so that the rim is level with the ground. The female builds the nest, an open cup made of grass and sedge, lined with finer grasses and hair. The female incubates the 3 to 5 eggs for 10 to 13 days. Both parents feed the young, which leave the nest at 10 to 11 days. Lincoln's Sparrows eat mostly small seeds and some invertebrates, occasionally visiting feeders. During the breeding season, they feed mostly on arthropods, especially insect larvae, and eat a small amount of seeds. This species is known from the surrounding riparian forests. Suitable habitat exists within the Project area and therefore it may be an uncommon winter visitor.

Double-crested cormorant, MSHCP

The double-crested cormorant is on the CDFW watchlist and is a Western Riverside MSHCP covered species. This species is a yearlong resident along the entire coast of California and on inland lakes and estuarine waters. Double-crested cormorants require lakes, rivers, reservoirs, estuaries, or ocean environments for foraging. This species nests in tall trees, wide rock ledges on cliffs, or rugged slopes near aquatic habitats.

This species feeds strictly on fish and foraging is opportunistic and flexible. In fact, more than 250 species of fish from over 60 families have been reported as prey (Hatch and Weseloh, 1999). While foraging, the double-crested cormorant dives from the water surface and pursues prey underwater, usually remaining submerged for about 30 seconds. This species typically nests on the mainland in tall trees near aquatic habitats. Males arrive at the nesting area first and shortly thereafter begin courtship displays. Once paired, both male and female prepare the nest. Breeding occurs mainly between April and July or August and most of the egg laying takes place from April to June. The clutch size is usually between three and four eggs. Although not observed within the project area this species was observed in flight above the nearby USACE Reach 9, Phase 2A project area. It likely occurs in transience only and the project area does not support suitable nesting or foraging habitat.

Downy Woodpecker, MSHCP

The downy woodpecker is covered under the Western Riverside MSHCP and is generally found throughout the continental United States and Canada. It is absent from the desert areas in the Southwestern United States. This species is found in most of the plant communities in California with the exception of the desert and semi-desert areas east of the Sierra Nevada range and south of the peninsular range. It lives in a variety of habitats from wilderness forests to urban backyards. This species prefers deciduous riparian woodland habitats. They prefer young riparian trees for nesting.

Downy Woodpeckers are our smallest and most commonly seen woodpeckers. This species is aggressive and will kick out other bird species from the nest cavities built by woodpeckers. They lay four to five

eggs in bare hole cavities in trees. Each egg takes 12 days to hatch and they stay with their parents for about a month. The downy woodpecker will forage lower to the ground than most woodpeckers. It can be found in shrubs. Males and females do not compete directly for food by using different foraging behaviors. Females generally pry off bark and glean for insects whereas the males will drill deeper into the wood for insects. Prey items include sunflower seeds, nuts, fruit, and insects such as ants, grasshoppers, wood boring beetles, spiders, crickets and flies. Although not observed within the project area this species was identified at the nearby USACE Reach 9, Phase 2A project. Suitable breeding habitat occurs in the project area.

White-faced Ibis, CSC, MSHCP

The white-faced ibis is a California Species of Special Concern and is covered under the Western Riverside MSHCP. White-faced ibis breed locally in North America from Oregon eastward to North Dakota and southward to the Mexican plateau. The largest breeding colonies usually are in Utah, Nevada, Oregon, and coastal Texas and Louisiana (Ryder and Manry 1994). There are also breeding and wintering populations in South America and Mexico, as far south as central Chile and central Argentina, however, the details of the more southern distribution are less well known (AOU 1998). The species winters from California (locally) eastward to Texas and coastal Louisiana and southward to Guatemala (Ryder and Manry 1994). [Riverside,]

Within its breeding range in inland areas, the white-faced ibis occurs in mainly shallow marshes with islands of emergent vegetation. They occasionally occur on spoil banks created by dredging. They occur locally in flooded shoals and mangrove swamps. In the coastal areas of the southern portion of the range, the white-faced ibis nests mostly in wetlands of outer coastal plains, freshwater marshes of common reed, bulltongue, saltmeadow cordgrass and torpedo panic- grass. Many colonies in the southern coastal areas are found in saltwater marshes (Ryder and Manry 1994). In southern California, extensive marshes are required for nesting (Garrett and Dunn 1981). The species prefers shallow, grassy marshes and nests in dense, fresh emergent wetland (Zeiner, et al. 1990). [Riverside,]

Migrant and wintering white-faced ibis may be found foraging in shallow lacustrine waters, muddy ground of wet meadows, marshes, ponds, lakes, rivers, flooded fields, and estuaries (Zeiner et al. 1990). Habitat use by wintering ibis in California appears to vary by region: in the Sacramento Valley, ibis are concentrated in agricultural fields and managed wetlands; in the San Joaquin Valley, ibis appear to use grassland/wetlands; in the Coachella Valley/Salton Sea/Imperial Valley, the vast majority of ibis occur in irrigated agricultural lands particularly alfalfa and wheat; on the coastal slope of central and southern California, wintering ibis use a variety of Habitats including marshy pasture lands, managed or natural freshwater marsh, pond edges, lake shores, and margins of brackish lagoons and estuaries (Shuford et al. 1996). In summary, most ibis wintering in California forage in managed wetlands or agricultural fields and private lands provide the majority of foraging Habitat in all of the state's main wintering areas (Shuford et al. 1996). [Riverside,]

Although this species is known to frequent areas upstream of Prado Dam, it would be expected to occur in the project area as a transient only. The project area does not supports very limited suitable nesting or foraging habitat.

Vermillion Flycatcher, CSC

The vermilion flycatcher is a California Species of Special Concern and is known as a common breeder in southern Arizona, New Mexico, and Texas (Wolf and Jones 2000). It breeds in Arizona from the northwest and Mogollon Rim south throughout the state, is common along the base of the Huachuca Mountains and is a locally common breeder on the lower Verde and Salt rivers in Maricopa County, Arizona. It also commonly breeds in southern New Mexico in the Pecos, San Francisco, Gila, and lower-middle Rio Grande valleys. In Texas, the vermilion flycatcher breeds in the western and central portions of the state, mainly in central and southern Trans-Pecos and Edwards Plateau, and north into areas south of the panhandle and southeast to the lower Texas coast (Wolf and Jones 2000). It is a rare and local breeder along the Salt and Colorado rivers (Wolf and Jones 2000). The vermilion flycatcher is normally a year-round resident throughout all but the northernmost portion of the breeding range in the United States, Mexico, and Central America. Its range during the winter fluctuates with winter conditions; in some winters, the species wanders along river corridors outside its normal range (Grinnell and Miller 1944). The vermilion flycatcher may winter outside of its breeding range throughout the coastal plain of Texas (Wolf and Jones 2000), in deserts of southeastern California north to southern Inyo County (Garrett and Dunn 1981), in southwestern Arizona (Wolf and Jones 2000), and into portions of Mexico (Wolf and Jones 2000). A few individuals winter regularly along the California coast north to Ventura County and occasionally to San Luis Obispo County, along the Gulf Coast of Texas, rarely north to southern Arkansas, throughout the mainland of Florida, and along the Atlantic Coast of Mexico (Wolf and Jones 2000).

In California, the vermilion flycatcher was formerly considered a more common and widespread breeder along the lower Colorado River, Imperial Valley, Coachella Valley, upper Mojave River drainage, and San Diego County (Grinnell and Miller 1944; Garrett and Dunn 1981), but its breeding range has declined throughout this area (Wolf and Jones 2000). Currently, in California, there are some isolated breeding populations in the lowlands in the south central and southeast portions of the state, including San Bernardino, Riverside, San Diego, Santa Barbara, Ventura, and Kern counties (Wolf and Jones 2000). Zeiner et al. (1990A) state that there are sporadic breeding populations in desert oases west and north of the Morongo Valley and Mojave Narrows in San Bernardino County. It has been recorded in summer along the Santa Clara River near Castaic and at Frazier Park, Kern County; however, there has been no evidence of breeding, and these observations are likely vagrants (Garrett and Dunn 1981).

Although not observed within the project area this species is known to occur in the Prado Basin. Suitable breeding habitat occurs in the project area.

Short-eared Owl, CSC, MSCP

The short-eared owl is a CDFW Species of Special Concern and is covered under the Western Riverside MSHCP. This species is a widespread winter migrant in California, primarily occurring in the Central Valley, the western Sierra Nevada foothills, and along the coastline. Short-eared owl very irregularly breed along the southern California coast (Garrett and Dunn, 1981). The short-eared owl is usually found in open areas with few trees, including annual grasslands, prairies, dunes, meadows, agricultural fields, and emergent wetlands. Tall grasses, brush, ditches, and wetlands are used for resting and roosting cover (Grinnell and Miller, 1944).

This species is a big-headed, short-necked owl with tawny to buff-brown plumage and whitish belly. Short-eared owls typically breed from early March through July (Bent, 1938). Courtship activities consist of aerial displays and hooting (Pitelka et al., 1955). Clutches usually consist of 5-7 eggs, however, may be higher during periods of high prey abundance. Females incubate the eggs and care for the semialtricial young while males bring food to females at the nest. This species is primarily a crepuscular hunter and the great majority of their diet consists of small mammals (Holt and Leasure, 1993; Clark, 1975). Although this species was not detected during 2017 and in previous 2011 and 2010 surveys, it has been recorded in project area and has the potential to be present in the large open grasslands that occur in the project area.

Long-eared Owl, CSC, MSHCP

The long-eared owl is a CDFW species of special concern. This species occurs from the boreal forests of Canada south to southern California, Arizona, Texas, New Mexico and in to the central Midwest and central Appalachia. In southern California this species has been reported from high elevations in the San Bernardino and San Jacinto Mountains.

This species occupies riparian bottomlands with tall willows and cottonwoods. It can also be found within belts of live oaks paralleling streams. It requires adjacent open land for foraging and the presence of old corvid or raptor nests for breeding. Long-eared owls lay their eggs in March. They lay about 4-5 eggs and incubate them for about 25-30 days. Fledging occurs at about 30-40 days. Long-eared owls prey primarily on voles and mice but will also take birds occasionally. The long-eared owl is known from the Prado Basin. This species is difficult to detect, however it may occupy the riparian vegetation within the project area and may also forage in the area.

Vaux's swift, CSC

Vaux's swift is a CDFW Species of Special Concern. In North America, this species breeds from southeast Alaska, British Columbia, northern Idaho, and western Montana to the Coast Ranges and Sierra Nevada of central California (Bull and Collins, 1993; Sterling and Paton, 1996). Vaux's swift is a migratory resident in southern California, particularly from mid-April to late May in spring and from late August to mid-October in fall (Bull and Collins, 1993). This subspecies breeds primarily in old growth coniferous and mixed-coniferous forests. Large-diameter, hollow trees, living or dead, are a necessary requirement for breeding and roosting (Bull and Collins, 1993). This subspecies also requires nearby open water with congregations of insects to support high-quality foraging habitat (Sterling, 2001).

Seven subspecies of Vaux's swift are now currently recognized, of which, only one occurs in North America. The Vaux's swift is a small, inconspicuous bird with little to no contrasting markings on a grayish to brownish overall color. This species is an aerial forager preying on a variety of arthropods, including flies, bees, ants, moths, mayflies, aphids, and true bugs. Vaux's swift is not a territorial species and is known to forage several miles from nesting sites (Bull and Collins, 1993; Sterling and Paton, 1996). This species is known to roost communally by the hundreds or even thousands within hollow snags in forested landscapes, possibly as a mechanism to conserve body heat (Bull and Collins, 1993).

Although this species was not detected during the most recent surveys (2017), it has been recently recorded in the nearby USACE Auxiliary Dike site and has previously been observed within the project area. This species is expected to occur within the project area.

Lawrence's goldfinch, SA

Lawrence's goldfinch is a CDFW Special Animal and generally breeds from the western foothills of the Sierra Nevada and the Coast Ranges in Shasta County south to northern Baja California. The wintering range for this species extends from the coastal slope of the Coast Ranges in southern California to northern Baja California, and from the Lower Colorado River Valley in Needles, California, east to southern Texas, and south to Sonora, Mexico.

This species breeds in a variety of habitats throughout its range in southern California, including mixed conifer-oak forest, blue oak savannah, pinyon-juniper woodland, chaparral, riparian woodland, and desert oases (Garrett and Dunn, 1981; Lehman, 1994; Roberson and Tenney, 1993; Unitt, 1984). However, it prefers xeric open oak woodland bordering chaparral in the upper foothills. Arid, open woodlands with adjacent bushy areas, such as chaparral or tall weedy fields characterize typical nesting habitat. This species is often found nesting within proximity to foraging habitat and open water (Davis, 1999). This small, conspicuous songbird reaches a height of four to five inches and possesses distinctly bright yellow coloration on its breast and wingbars; however, females are much less distinct. This species feeds primarily on seeds of native plant species, particularly fiddleneck (*Amsinckia* spp.) during the spring months and chamise (*Adenostoma fasciculatum*), mistletoe (*Phoradendron* spp.), coffeeberry (*Rhamnus californica*), and annual grasses during other seasons (Davis, 1999). Lawrence's goldfinches often form large flocks, particularly in winter. However, both males and females of this species will rigorously defend territories from conspecific intruders during the breeding season.

Although this species was not detected in the project area during the most recent surveys, it has been previously observed in the project area is assumed present. Suitable nesting habitat is present within and this species may forage throughout the project area.

Amphibians

Western Spadefoot Toad, CSC, MSHCP

The western spadefoot toad is a CDFW Species of Special Concern and is endemic to California and northern Baja California. The species ranges from the north end of California's great Central Valley near Redding, south, east of the Sierras and the deserts, into northwest Baja California (Jennings and Hayes, 1994).

Although the species primarily occurs in lowlands, it also occupies foothill and mountain habitats. Within its range, the western spadefoot toad occurs from sea level to 1,219 meters (4,000 feet) AMSL, but mostly at elevations below 910 meters (3,000 feet) AMSL (Stebbins, 2003). Holland and Goodman (1998) report that riparian habitats with suitable water resources may also be used. the species is most common in grasslands with vernal pools or mixed grassland/coastal sage scrub areas (Holland and Goodman, 1998).

The western spadefoot toad is almost completely terrestrial, remaining underground eight to 10 months of the year and entering water only to breed (Jennings and Hayes, 1994; Holland and Goodman, 1998; Storey et al., 1999). The species aestivates in upland habitats near potential breeding sites in burrows approximately one meter in depth (Stebbins, 1972) and adults emerge from underground burrows during relatively warm rainfall events to breed. While adults typically emerge from burrows from January through March, they may also emerge in any month between October and April if rain thresholds are met (Stebbins, 1972; Morey and Guinn, 1992; Jennings and Hayes, 1994; Holland and Goodman, 1998).

Eggs are deposited in irregular small clusters attached to vegetation or debris (Storer, 1925) in shallow temporary pools or sometimes ephemeral stream courses (Stebbins, 1985; Jennings and Hayes, 1994) and are usually hatched within six days. Complete metamorphosis can occur rapidly, within as little as three weeks (Holland and Goodman, 1998), but may last up to 11 weeks (Burgess, 1950; Feaver, 1971; Jennings and Hayes, 1994).

Western spadefoot toads likely do not move far from their breeding pool during the year (Zeiner et al., 1988), and it is likely that their entire post-metamorphic home range is situated around a few pools. However, opportunistic field observations indicate that they readily move up to at least several hundred meters from breeding sites (NatureServe, 2011). Breeding populations have been documented nearby. Ponded water, such as vernal pools or road pools, or slow moving streams are required for breeding. Old percolation ponds just east of Rincon Road and within Temescal Wash may provide suitable habitat for this species.

Fish

Arroyo Chub, CSC, MSHCP

The arroyo chub is a CDFW Species of Special Concern. This species occurs within the coastal streams of Ventura, Los Angeles, Orange and San Diego Counties. It is currently only present in abundant numbers only along the West Fork of the San Gabriel River in Los Angeles County. The arroyo chub occurs in slow-moving or backwater sections of warm to cool streams with mud or sand substrates. Spawning occurs in pools or in quiet edge waters (Moyle et al., 1995).

The arroyo chub is a relatively small, short-lived member of the minnow family (Cyprinidae). This species reaches a maximum length of no more than 3.5 inches and lives no more than four years (McGinnis, 2006). The arroyo chub reaches sexual maturity at one year and spawns more or less continuously from February to August. Algae, insects, and small crustaceans comprise the primary diet of this species.

This species is known from Corona North USGS quad in isolated sections of the Santa Ana River from Riverside and San Bernardino county line downstream to the Prado Dam (Swift, 2001). Historical record exists from the pool located just below where Temescal Wash flows under Rincon Road.

Reptiles

Western Pond Turtle, CSC, MSHCP

The western pond turtle is a CDFW Species of Special Concern and a Western Riverside MSHCP covered species. The western pond turtle is uncommon to common in suitable habitat throughout

California, west of the Sierra-Cascade crest. This species is absent from the desert regions with the exception of portions of the Mojave River and its tributaries in the Mojave Desert. Western pond turtle occurs at elevations ranging from sea level to approximately 4,700 feet (Jennings and Hayes, 1994).

This species is associated with permanent or nearly permanent bodies of water in a wide variety of habitats. Western pond turtle is the only abundant native turtle in California. This species is omnivorous, feeding on aquatic plant material, beetles, aquatic invertebrates, fishes, frogs, and even carrion (Stebbins, 1972). Pond turtles require basking sites such as partially submerged logs, rocks, mats of floating vegetation, or open mud banks. Typically, turtles will slip from basking sites to underwater retreats when threatened. Females usually deposit eggs in nests constructed in sandy banks along slow-moving streams. However, along foothill streams, turtles may move considerable distances to find a suitable nest site. Three to eleven eggs are laid from March to August depending on local conditions. This species was observed in the northwestern portion of the project area in a deep pool just below where Temescal Wash crosses under Rincon Road.

Silvery Legless Lizard, CSC, MSHCP

The silvery legless lizard is a CDFW Species of Special Concern. Silvery legless lizard occurs from Contra Costa County, California, south through the Coast, Transverse, and Peninsular Ranges; through parts of the San Joaquin Valley; and, along the western edge of the southern Sierra Nevada and western edge of the Mohave Desert (Jennings and Hayes, 1994). Its reported elevation range extends from sea level to approximately 5,700 feet in the Sierra Nevada foothills, but most historic localities along the central and southern California coast are below 3,500 feet (Jennings and Hayes, 1994). This fossorial species is rarely seen and it may be more abundant than it appears.

The silvery legless lizard requires sandy or loose loamy soils under sparse vegetation for burrowing and is strongly associated with soils that contain high moisture content. It has been found in beaches, chaparral, and pine-oak woodland habitat and sycamore, cottonwood, or oak riparian habitat that grows on stream terraces. It is most common in coastal dune, valley-foothill, chaparral, and coastal scrub habitats (Zeiner et al., 1988).

The silvery legless lizard is a member of the family Anniellidae, commonly known as North American legless lizards. The silvery, gray, or beige dorsal side of this subspecies is separate from the yellow ventral side by a dark mid-dorsal line (Stebbins, 2003). Little is known about specific habitat requirements for courtship and breeding (CDFW, 2008). Breeding occurs in early spring through July. The gestation period lasts for approximately four months (Jennings and Hayes, 1994). Live young are born in September, October, or occasionally as late as November, with litter size ranging from one to four, but two is most common (Stebbins, 1954). Soil moisture is essential for the subspecies and they die if they are unable to reach a moist substrate (Stephenson and Calcarone, 1999). Silvery legless lizards have a relatively low thermal preference, allowing for active behavior on cool days, early morning, and even at night during warmer periods (Bury and Balgooyen, 1976). This subspecies typically forages at the base of shrubs or other vegetation either on the surface or just below in leaf litter or sandy soils. The diet consists of insect larvae, small adult insects, and spiders (Stebbins, 1954).

Although scattered records occur for this subspecies throughout western Riverside County, the project area supports only marginal habitat, at best due to its isolation, frequent flooding and surrounding disturbance; not identified during surveys.

Orange-throated Whiptail, CSC, MSHCP

The orange-throat whiptail is a CDFW Species of Special Concern and is covered under the Western Riverside MSHCP. The geographic range for orange-throat whiptail extends from extreme southern California west of the crest of the Peninsular Ranges to the southern tip of Baja California. Orange-throat whiptail primarily occurs in coastal sage scrub, and to a lesser extent, chaparral communities. Highest densities of this species are typically associated with floodplains and streamside terraces (Jennings and Hayes, 1994). It has also been reported in a variety of other vegetation types, including non-native grasslands, juniper woodland, and oak woodland (RCIP, 2002). To avoid extreme heat and predation, orange-throat whiptails will often seek refuge in pockets of dense vegetation or under objects, such as logs, rocks, leaf litter, or debris (Zeiner et al., 1988). This species will seldom use existing rodent burrows (Brattstrom, 2000). Rather, orange-throat whiptail will excavate their burrows in order to hide eggs. Friable soils apparently seem to be a necessary requirement for burrow construction (Bostic, 1965).

The orange-throat whiptail is a moderately-sized gray, dark brown, reddish, or black lizard with between five to seven pale yellow to tan stripes along the side. Fourteen subspecies are currently recognized in the genus *Aspidoscelis*, with the species *A. hyperthra* distinguished by the presence of a single, yellow-brown to olive-gray frontoparietal scale on its head (Walker and Taylor, 1968). Only one subspecies, *A. h. beldingi* occurs in the continental United States (Grismer, 1999; Stebbins, 1985).

Orange-throat whiptails appear to be dietary specialists, with termites comprising more than 85 percent of their prey-base (Jennings and Hayes, 1994). The remainder of their diet consists of other insects, spiders, scorpions, centipedes, and other lizards (Stebbins, 1985). This species is an alert and active predator, which may minimize competition with other small diurnal lizards for food resources (Zeiner et al., 1988). Little is known about habitat requirements of reproduction for this species. It is apparent that hibernation and oviposition sites occur on well-isolated, south-facing slopes (Jennings and Hayes, 1994). Orange-throat whiptails are preyed upon by common predators, including snakes and raptors while it is likely that nocturnal mammals prey on eggs of this species (Zeiner et al., 1988). Habitat is marginal for this species within the project area. Nearest records are within 5 miles southwest of the Project area in Coal Canyon and 4.9 miles west of the area near Scully Hill.

Coastal Whiptail, SA, MSHCP

The coastal whiptail is a CDFW Special Animal and is also covered under the Western Riverside MSHCP. This subspecies is found in coastal southern California, mostly west of the Peninsular Ranges and south of the Transverse Ranges. Its range extends north into Ventura County and south to Baja California. The coastal whiptail occurs in a variety of habitats, including valley-foothill hardwood, valley-foothill hardwood-conifer, valley-foothill riparian, mixed conifer, pine-juniper, chamise-redshank chaparral, mixed chaparral, desert scrub, desert wash, alkali scrub, and annual grasslands. This subspecies is most commonly associated with areas of dense vegetation, but are also found around sandy areas along gravelly arroyos or washes (Stebbins, 2003).

The coastal whiptail is a distinctive subspecies with a jerking gait that rarely sits still. Whiptails forage actively on the ground hunting a wide variety of ground-dwelling invertebrates, including grasshopper, ants, beetles, termites, and spiders (Stebbins, 2003). This diet may change seasonally to reflect the abundance of prey that is available (Vitt and Ohmart, 1977). Most activities occur in the morning, except on cloudy days when activities may last throughout the day (Vitt and Ohmart, 1977). The reproductive season for coastal whiptails generally occurs between May and August; however, this may vary depending on local conditions. It has been reported that whiptails in the southern California desert regions may atypically lay more than one clutch of eggs per year (Pianka, 1970). The project area supports suitable habitat for this species; nearest known record occurs roughly 8.5 miles southwest of the project area in Weir Canyon

South Coast Garter Snake, CSC, MSHCP

The south coast garter snake is a CDFW Species of Special Concern. The garter snake has the northernmost range of any reptile in North America, and is wide ranging and locally abundant. Natural history records for the south coast garter snake in California include sightings from Santa Clara River Valley (Ventura County) south to San Pasqual (San Diego County) (NatureServe, 2011). South coast garter snakes are endemic to southern California's coastal plain and found primarily between sea level and 800 meters (2,625 feet) AMSL (NatureServe, 2011). The south coast garter snake has a small range along the coast of southern California.

This garter snake is generally found in areas along permanent and semi-permanent sources of water (Zeiner et al, 1988). These diurnal snakes are most active in the early morning and late afternoon in the summer and in midday in cooler times (Zeiner et al., 1988). This garter snake forages on land and in quiet pools of water and preys on slugs, earthworms, leeches, small fish, tadpoles, insects, small mammals and birds, and lizards (Jennings and Hayes, 1994; Zeiner et al., 1988). Garter snakes generally retreat to communal hibernation burrows in October (Jennings and Hayes, 1994). Occasionally, on warmer winter days, the snakes will emerge from hibernation and bask in the sun. Common garter snakes of southern California in higher elevations, inland, and in colder areas hardly emerge from their hibernation (Zeiner et al., 1988). Hibernation lasts until March. Males emerge first and prepare for mating.

As of the 1990s, the south coast garter snake was extinct from 18 historical localities and endangered in 24 more (Jennings and Hayes, 1994). In addition to the direct loss of habitat, south coast garter snakes are vulnerable to several effects related to urbanization. Development not only directly removes habitat, but urban development also may impede natural movement between habitats (Jennings and Hayes, 1994) and habitat quality may be reduced by alteration of channel morphology (NatureServe, 2011). This species was observed within the borrow area during previous surveys.

Red Diamond Rattlesnake, CSC, MSHCP

Red diamond rattlesnake is a California Species of Special Concern and is covered under the Western Riverside MSHCP. This species inhabits arid scrub, coastal chaparral, oak and pine woodlands, rocky grassland, cultivated areas on the desert slopes of the mountains, it ranges into rocky desert flats. This snake is a heavy-bodied, venomous pit viper, with a thin neck and a large triangular head. [California Herps, 2012]

There are no known records for this species in the project area or surrounding areas. The project area is located within the known geographic distribution for this species.

California Mountain Kingsnake, CSC, MSHCP

The California mountain kingsnake is considered a CDFW Species of Special Concern and is covered under the Western Riverside MSHCP. This species is an uncommon resident occurring throughout the length of the Sierra and Cascades and locally in the Coast Ranges. This species is most common in montane forest, however, it is also found at lower elevations in foothill canyons, riparian woodlands, or mesic oak woodlands characterized by sycamore, cottonwood, and coast live oak (McGurty, 1988).

California mountain kingsnakes are easily distinguished by the bright black, white, and red crossbands. This subspecies possesses a dark snout with typically over sixty percent of its body split by red markings (Stebbins, 2003). The breeding season for California mountain kingsnakes occurs from March through May. Eggs are laid in June or July in a single clutch of five or six usually in loose soil under rocks or surface objects such as decaying logs (Zeiner et al., 1988). California mountain kingsnakes exhibit diurnal and crepuscular activity from mid-March through mid-October and nocturnal activity patterns during warmer months (Stebbins, 1954). The prey base for this subspecies consists of lizards, snakes, nestling birds, bird eggs, and small mammals (Zeiner et al., 1988). There are no known records for this species in the project area or surrounding areas. The project area is located within the known geographic distribution for this species.

Coast Horned Lizard, CSC, MSHCP

The coast horned lizard is a CDFW Species of Special Concern and is covered under the Western Riverside MSHCP. The coast horned lizard's historic range extended from the Transverse Ranges in Kern, Los Angeles, Santa Barbara, and Ventura Counties south through the Peninsular Ranges of southern California and into Baja California, Mexico as far south as San Vicente (Jennings and Hayes, 1994). The known elevation range is from 10 m at the El Segundo Dunes to approximately 2130 m at Tahquitz Meadow on Mt. San Jacinto (Jennings and Hayes, 1994).

The coast horned lizard occurs in a wide variety of habitats throughout its range, though found primarily in chaparral and mixed chaparral-coastal sage scrub, to stands of pure coastal sage scrub. It is also known to occur in riparian habitats, washes, and most desert habitats. They are occasionally locally abundant in conifer-hardwood and conifer forests. This species is most common in open, sandy areas where abundant populations of native ant species (e.g., *Pogonomyrmex* and *Messor* spp.) are present.

The coast horned lizard is a medium-sized (6 to 6.25 inches) total length, flat-bodied species. It is surface active primarily from April to July. This species spends a considerable amount of time basking, either with the body buried and head exposed, or with the entire body oriented to maximize exposure to the sun. Coast horned lizards are oviparous and lay one clutch of 6-17 (average 11-12) eggs per year from May through early July (Jennings and Hayes, 1994). Incubation occurs for two months and hatchlings first appear in late July and early August. Although little is known about longevity in the wild, adults are thought to live for at least eight years (Jennings and Hayes, 1994). They primarily eat native harvester ants (*Pogonomyrmex* spp.) and do not appear to eat invasive Argentine ants (*Iridomyrmex humilis*) that have replaced native ants in much of central and southern California. This species is an opportunistic feeder, and while harvester ants can comprise upwards of 90% of their diet, they will feed on other insect species when those species are abundant (Jennings and Hayes, 1994). Known predators of the coast

horned lizard include the Southern Pacific rattlesnake, striped racer, burrowing owl, greater roadrunner, loggerhead shrike, American kestrel, prairie falcon, badger, and gray fox, but a variety of other predators likely take horned lizards as well (Jennings and Hayes, 1994). Defense tactics used by this species include remaining motionless to utilize its cryptic appearance, only running for the nearest cover when disturbed or touched. Captured lizards puff up with air to appear larger, and if roughly handled, will squirt blood from a sinus in each eyelid (Jennings and Hayes, 1994). This species has been reported from the general region surrounding the project area. The project area supports suitable habitat and is within the known geographic distribution for this species.

Two-striped Garter Snake, CSC

The two-striped garter snake is a CDFW Species of Special Concern. Two-striped garter snake occurs along a continuous range from northern Monterey County south through the South Coast and Peninsular Ranges to Baja California. Isolated populations also occur through southern Baja California, Catalina Island, and desert regions along the Mojave and Whitewater Rivers in San Bernardino and Riverside Counties, respectively (Jennings and Hayes, 1994). This species typically occurs at elevations ranging between sea level and approximately 8,000 feet (Jennings and Hayes, 1994).

This species is primarily associated with aquatic habitats that border riparian vegetation and provide nearby basking sites (Jennings and Hayes, 1994). These areas typically include perennial and intermittent streams and ponds in a variety of vegetation communities, including chaparral, oak woodland, and forest habitats (Jennings and Hayes, 1994). During the winter, two-striped garter snakes will seek refuge in upland areas, such as adjacent grassland and coastal sage scrub.

After several taxonomic revisions, two-striped garter snake has been recognized as a separate species where it had previously been considered a subspecies of the western aquatic garter snake (*T. couchii*) (Rossman and Stewart, 1987). This species is usually morphologically distinguished by the lack of a mid-dorsal stripe.

Two-striped garter snakes hibernate during the winter months, however, they have been observed actively above ground on warm winter days (Jennings and Hayes, 1994). The mainly aquatic diet of this species consists primarily of fish, fish eggs, and tadpoles and metamorphs of toads and frogs; however, they will also consume worms and newt larvae (Jennings and Hayes, 1994). Two-striped garter snakes breed from late March to early April and young are typically born in late July to August; however, some have been observed as late as November (Jennings and Hayes, 1994).

Although this species was not identified during the most recent 2017 surveys, the project area is within the known geographic range of the species and suitable habitat occurs. This species is known to occur within the Prado Basin and surrounding areas and is common near water.

San Bernardino Ringneck Snake, SA

The ringneck snake is considered a CDFW Special Animal. This species is widespread in California, absent only from large portions of the Central Valley, high mountains, deserts, and those regions east of the Sierra-Cascade crest (CDFW, 2008). The ringneck snake occurs in forests, woodlands, grasslands, chaparral, and riparian corridors in arid regions (Stebbins, 2003). Seasonally moist areas are typically preferred. This species is often encountered in somewhat moist microhabitats, often near intermittent streams (CDFW, 2017).

The ringneck snake is slender and typically olive, brownish, blue-gray, or nearly black in color. The head is dark and a conspicuous yellow, orange, or cream colored neckband usually occurs. During courtship, males apparently bite the female at the neck ring. Clutches of two to ten eggs are laid between June and July, often in communal nests found in loose, aerated soils, stabilized talus, or rotting logs (Stebbins, 2003). Although some diurnal activity has been observed, this little-studied snake is often found beneath surface objects during the day. It is likely that this species exhibits crepuscular, and sometimes, nocturnal behavior during warmer periods (CDFW, 2017). Ringneck snakes forage on the surface and under surface objects, preying on earthworms, salamanders, treefrogs, small lizards, and small snakes. It has been suggested that slender salamanders (*Batrachoseps*) are important prey items as the range for these species largely overlaps that of the ring-necked snake (Stebbins, 2003). This species was not identified during 2017, 2011 and 2010 surveys. The project area is located within the known geographic distribution for this species and suitable habitat occurs within the project area.

Mammals

Coyote, MSHCP

The coyote is covered under the Western Riverside MSHCP and is generally a wide-ranging species occurring from Costa Rica to northern Alaska, and from coast to coast in the United States and Canada. Coyotes occupy a broad range of habitats which generally are dependent on availability of prey species. They commonly hunt in open to semi-open areas. Coyotes den in a variety of places, including brush-covered slopes, steep banks, rock ledges, thickets, hollow logs, and dens previously used by other animals.

Coyotes are active day and night, with peaks in activity at dawn and dusk. Both males and females are capable of breeding as yearlings; however, many coyotes do not breed until their second year. Some coyotes mate with the same individual from year to year, but not necessarily for life. Mean litter size is generally positively correlated with prey abundance. Common prey items include deer, elk, sheep, rabbits and hares, various rodents, ground-nesting birds, amphibians, lizards, snails, fish, crustaceans, and insects. This species was identified in the project area during the recent surveys in 2017, and previous surveys in 2011 and 2010 and is known from the Prado Basin and surrounding areas.

Dulzura kangaroo rat, MSHCP

The Dulzura kangaroo rat is covered under the Western Riverside MSHCP and occurs in open microhabitats in chaparral, coastal sage scrub (including Riversidean and Diego coastal sage scrub), Riversidean alluvial fan sage scrub and peninsular juniper woodland throughout the Plan Area up to approximately 2,600 feet in elevation. The approximate elevation limit for this species is based on Sullivan and Best (1997). Williams *et al.* (1993) describe the habitat of the Dulzura kangaroo rat as coastal chaparral (which would include coastal sage scrub) and grassland communities. However, trapping studies in western Riverside County often demonstrate that the Dulzura kangaroo rat is absent in grasslands occupied by the sympatric Stephens' kangaroo rat (*Dipodomys stephensi*) (Behrends, pers. obs.). Furthermore, studies by Price and her colleagues (Price *et al.* 1991; Price and Goldengay 1992; Goldengay and Price 1997) clearly showed that in areas where the Stephens' kangaroo rat and Dulzura kangaroo rat overlap, the Dulzura kangaroo rat was captured in areas with significantly greater shrub and rockier cover than the Stephens' kangaroo rat. Price *et al.* (1991) demonstrated that Dulzura kangaroo rats

forage under shrub canopies and avoid lighted open areas more than Stephens' kangaroo rat. The Stephens' kangaroo rat appears to be socially dominant over the Dulzura kangaroo rat (Bleich and Price 1995) and may actively exclude them from grassland habitat. In the absence of the Stephens' kangaroo rat, Dulzura kangaroo rats often occur in grasslands that are near chaparral or coastal sage scrub (Behrends, pers. obs.). Also, Price and Waser (1984) found that Dulzura kangaroo rats increase in abundance following wildfires that create openings in chaparral and sage scrub habitats. [Riverside, 2002]

According to Sullivan and Best (1997), the Dulzura kangaroo rat ranges from approximately the foothills east of Ventura and north of the Santa Clara River Valley south to approximately Magdalena Plain, Baja California, Mexico. The species occurs at elevations below approximately 2,600 feet in the Transverse and Peninsular mountain ranges, with sampled populations from Soliment Canyon in Ventura County, Cajon Pass in San Bernardino County, Lake Mathews and Cabazon in Riverside County, San Luis Rey Valley, Warner Springs, San Diego and Jacumba in San Diego County, and Ensenada, Sierra Juarez, Valle de Trinidad, San Quintin Plain, San Pedro de Martir, El Rosario, San Agustin, Santa Catarina, Laguna Chapala, San Andres, Mesquital, San Ignacio and Magdalena Plain in Baja California, Mexico. It can be assumed that the Dulzura kangaroo rat occurs in sage scrub, chaparral and other mesic to xeric shrub vegetation communities (e.g., desert scrubs, pinyon-juniper woodlands within the Upper Sonoran Zone) within this geographic and elevational range. [Riverside, 2002]

No records exist for the area but suitable habitat exists nearby.

San Diego Black-tailed Jack Rabbit, CSC, MSHCP

The San Diego black-tailed jackrabbit is a CDFW Species of Special Concern and is covered under the Western Riverside MSHCP. The San Diego black-tailed jackrabbit occurs on the coastal side of the southern California Mountains. This subspecies has been recorded on Mt. Pinos and well as in Ventura, Los Angeles, Orange, and San Diego Counties, and into Baja California, Mexico (Hall, 1981). The black-tailed jackrabbit occurs in a variety of open habitats including grasslands, agricultural fields, or sparse coastal sage scrub (Bond, 1977).

The San Diego black-tailed jackrabbit is one of 17 subspecies of *L. californicus* that occur in the western United States. The San Diego black-tailed jackrabbit and *L. c. deserticola* both occur in southern California (Hall, 1981). The length of the breeding season for the San Diego black-tailed jackrabbit depends upon the severity and length of winter, as this subspecies breeds year-round. Gestation lasts approximately 40 days, and litter size varies depending on environmental conditions (Best, 1996). San Diego black-tailed jackrabbits feed on a wide variety of grasses, forbs, and shrubs (Zeiner et al, 1990b). Predators include coyotes, hawks, owls and foxes (Best, 1996). This subspecies is known from the Prado Basin and was recently observed within the nearby USACE Auxiliary Dike project. The project area supports suitable habitat.

Bobcat, MSHCP

The bobcat is covered under the Western Riverside MSHCP and is endemic to North America and fairly common throughout most of California. Suitable habitats for bobcats consist of large areas of broken, rough, rocky terrain supporting brushy deciduous and conifer forests or chaparral, adjacent to smaller

areas of riparian habitat and stands of dense forest. Availability of water may limit bobcat distribution in xeric regions. This species is active yearlong. It is mostly nocturnal and crepuscular with some diurnal activity. The average lifespan is 15.5 years in the wild or 32 years in captivity. Bobcats usually breed in winter. Gestation periods last from 60-70 days and most young are probably born in spring in California. The bobcat is strictly carnivorous, its diet primarily consisting of rabbits. Additional prey items include large rodents, birds, mice, and reptiles. This species is known from the Prado Basin and has been observed in the project area.

Long-tailed Weasel, MSHCP

The long-tailed weasel is covered under the Western Riverside MSHCP. This species is the most widely distributed mustelid in the New World. Its range extends from southern Canada through most of the United States to Mexico, Central America and the northern parts of South America. It is typically found in open or semi-open habitats near water. This species lives in a wide-variety of habitats including woodlands, thickets, open areas and farmland. It usually lives near a water source. Adult males measure from 33 to 45 cm (14 to 18 in), including their tails, and may weigh up to 500g (1 lb); females are typically about 15% smaller. The long-tailed weasel mates in the summer but the eggs don't begin to develop until about 27 days before the babies are born. The female gives birth in the spring. Most litters have between 4-8 young. Long-tailed weasels mainly eat rodents. They are most active at night but are sometimes seen during the day. They are highly solitary, and their home ranges do not overlap with another member of the species of the same sex. This species is relatively common within riparian corridors, but rarely observed. Long-tailed weasel has been reported at the USACE field office west of the project area.

Mountain Lion, MSHCP

The mountain lion is covered under the Western Riverside MSHCP. In the United States today, mountain lions occur west of the Rocky Mountains and in small, scattered populations to the east. In California, mountain lions are found at elevations from sea level to about 10,000 feet (3,050 meters) throughout the state except in the Central Valley and extreme deserts of the southeast. Mountain lions are habitat generalists, inhabiting a variety of habitat types throughout California, from deserts to humid Coast Ranges. They are most abundant in areas that support a large population of deer, their primary prey. Within these habitat types, mountain lions tend to prefer rocky cliffs, ledges, and other areas that provide cover.

Mountain lions are solitary, secretive, and elusive (Torres et al., 1996). They are primarily nocturnal and commonly forage at dawn and dusk. Mountain lions reach sexual maturity at approximately 2.5 years of age, after which time they are capable of breeding throughout the year. They generally produce one litter every other year but can breed in consecutive years under optimal conditions. Gestation lasts 82–98 days, and litter size ranges from one to six. Average lifespan is about 12 years in the wild, but mountain lions have been known to live up to 25 years in captivity. On average, only one kitten out of three survives to sexual maturity (Torres et al., 1996). This species is known from the nearby Prado Basin and Chino Hills State Park. Cover is sparse for this species in the project area but species likely uses the project area as a movement corridor and possibly for foraging.

Los Angeles Pocket Mouse, CSC, MSHCP

The Los Angeles pocket mouse is a California Species of Special Concern and is covered under the Western Riverside MSHCP. This species is a subspecies of the little pocket mouse that historically occurred in the Los Angeles Basin. Historic records of this species occur from San Fernando (Los Angeles County) east to the City of San Bernardino (San Bernardino County) and the San Geronimo Pass (Riverside County), and southeast to Hemet and Temecula (southern Riverside County; Hall 1981). Williams (1986) recommended *P. l. brevinasus* as a high priority species of concern in California.

The Los Angeles pocket mouse is small-bodied and soft-furred with grayish yellow hairs (Ingles 1965). It inhabits open habitats with fine, sandy soils (Grinnell 1933) and is restricted to lower elevation grassland and coastal sage scrub habitats (Patten et al. 1992). In the San Bernardino Valley, this species was captured in sandy areas of chaparral, coastal sage scrub, alluvial fan sage scrub, desert scrub, and washes (San Bernardino County Museum 2007). This species is noted for its close association with sandy soils, particularly those associated with intermittent washes and dune formations (Dudek and Associates 2000). No records exist for the area but suitable occurs within the project area.

Brush Rabbit, MSHCP

The brush rabbit is covered under the Western Riverside MSHCP. This species is a Pacific coastal species that occurs west of the Cascades and Sierra Nevadas from southern Oregon to Baja California, Mexico. It is generally absent from the dry Central Valley, except for a small population of *S. b. riparius* known only from the west side of the San Joaquin River in Stanislaus County. Marginal records for the subspecies *S. b. cinerascens* include San Emigdio Canyon; Reche Canyon; Dos Palmas Springs; Santa Rosa Mountains; and Baja California (Hall 1981). They occur from sea level to at least 2,070 meters (6,800 feet) (Chapman 1974). [Riverside, 2002]

Brush rabbits inhabit dense, brushy cover, most commonly in chaparral vegetation (Chapman 1974). They also occur in early successional stages of oak and conifer habitats (Zeiner *et al.* 1990). Brush rabbits do not dig their own dens, but use the burrows of other species, brush piles, or "forms." In the San Francisco Bay area, Connell (1954) found that brush rabbits concentrate their activities at the edge of brush and exhibit much less use of grass areas. Use of interior brush also was used irregularly and Connell suggests that the brush-herb ecotone is better habitat than continuous chaparral. Chapman (1971) also found that brush rabbits at a study site near Corvallis, Oregon rarely left brushy cover. Brush may be used more in the drier seasons while grasses are used in the wetter seasons in relation to growth of annual herbaceous vegetation. Use of habitat also probably is related to the breeding season. [Riverside, 2002]

Although this species was recently identified at the nearby USACE Auxiliary Dike project, the project area supports only marginal suitable habitat.

Pallid Bat, CSC

The pallid bat is a CDFW Species of Special Concern and has a broad geographic range, extending from southern British Columbia to central Mexico and from California east to the Midwestern United States (Harvey et al., 1999). This species occurs most commonly below elevations of roughly 6,000 feet (Stephenson and Calcarone, 1999). Pallid bats are year-round residents in California (Philpott, 1997). Pallid bats occur in a variety of habitats, including grasslands, shrublands, woodlands, scattered desert

scrub, agricultural fields, and mixed conifer forests (Barbour and Davis, 1967; Hermanson and O'Shea, 1983; Orr, 1954; Philpott, 1997). This species appears to prefer edges and open areas without trees (SNFPA, 2001). Roosting sites include rock crevices, mines, caves, tree hollows, buildings, bridges, and culverts (Hermanson and O'Shea, 1983; Tactarian, 2001).

The pallid bat is a large, light-colored bat with prominent ears. This is a social species, communicating through a variety of vocalizations to indicate territorial disputes, direct individuals to roosting sites, and facilitate mother-infant relations (Nagorsen and Brigham, 1993). Pallid bat maternity colonies form in early April and may contain from 12 to 100 individuals (Zeiner et al, 1990b). The diet of pallid bats primarily consist of large arthropods, including scorpions, crickets, moths, and praying mantids which are gleaned from the ground or on the surfaces of vegetation (Hermanson and O'Shea, 1983). Emergence from roosting sites typically begins thirty to sixty minutes after sunset, but can vary seasonally (Hermanson and O'Shea, 1983; Zeiner et al, 1990b). Foraging is usually concentrated into two periods with the first activity peak occurring 90-190 minutes after sunset, and the second occurs just prior to dawn (Hermanson and O'Shea, 1983; Zeiner et al, 1990b). Nagorsen and Brigham (1993) report that pallid bats will travel up to 2.5 miles between day roosts and foraging areas. Between activity periods, pallid bats may remain torpid for up to five hours (O'Shea and Vaughn, 1977). This species is known to hibernate, but will periodically arouse to forage for food and water (Philpott, 1997).

Although this species was not detected during recent surveys, this species is known from three surrounding USGS quads and suitable foraging habitat occurs in the Project area. Limited roosting habitat occurs within the project area.

Western Mastiff Bat, CSC

The western mastiff bat is a CDFW Species of Special Concern. The western mastiff bat occurs in two populations; one from the southwestern United States to central Mexico and the other from the northern and central portions of South America (Harvey et al., 1999). The western or California mastiff bat subspecies primarily occurs from low to mid elevations in southern and central California southeast to Texas and south to central Mexico (Best et al., 1996).

The western mastiff bat utilizes a variety of habitat types including desert scrub, chaparral, mixed conifer forest, giant sequoia forests, and montane meadows (Philpott, 1997). In southern California this bat typically roosts in semiarid areas with low-growing chaparral that does not obstruct cliffs or rock outcrops (Best et al., 1996). Because of its large wingspan, this bat requires roosts that have at least 2 m of free space to drop from to initiate flight. These bats utilize natural crevices in granitic and sandstone cliffs as well as crevices in buildings for roosting (Best et al., 1996; NatureServe, 2009). The western mastiff bat is the largest bat in the United States with a total length of 15.7 to 18.5 cm (NatureServe, 2009). This bat breeds in early spring with most births likely occurring from June through July, and females usually give birth to one offspring (NatureServe, 2009). Colonies typically consist of less than 100 individuals (NatureServe, 2009). Western mastiff bats are primarily insectivorous, and the diet contains a high proportion of moths (Philpott, 1997). Predators include peregrine falcon, American kestrel, red-tailed hawk, and barn owl (Best et al., 1996). This subspecies was identified in the USACE Reach 9 2A Project in 2016. Suitable habitat occurs throughout the project area.

Yuma Myotis, SA

Yuma myotis is CDFW Special Animal that in California is found from sea level to over 11,000 feet (3300 meters), but is uncommon above 8,000 feet (2560 meters) (Zeiner et al., 1990b). This species occurs in a variety of habitats including riparian, and scrublands and deserts, and forests. It is known to roost in bridges, buildings, cliff crevices, caves, mines, and trees. This species typically mates in the fall. Females give birth to one pup from mid spring to mid-summer in maternity colonies that may range in size to several thousand individuals, while males generally roost singly in the summer. Individuals become active and forage just after sunset. They prey primarily on aquatic emergent insects including caddis flies, midges, moths and beetles. This species is relatively common throughout California and suitable roosting habitat exists in the project area in the riparian trees. Yuma myotis have been documented roosting at the Reach 9 Phase 2B project site several miles west of the project area.

Pocketed Free-tailed Bat, CSC

The pocketed free-tailed bat is a CDFW species of special concern found in Riverside, San Diego, and Imperial Counties. It is rare in California, but more common in Mexico. Pocketed free-tailed bats typically occur in a variety of habitats, including pinyon-juniper woodlands, desert scrub, desert succulent scrub, desert riparian, desert wash, and palm oases. The pocketed free-tailed bat is a swift, high-flying species that feeds on insects that are detected by echolocation over ponds, streams, or desert habitats. Moths are the principal prey source. This species prefers rock crevices in cliffs for roosting sites, where it typically gathers in small groups. Reproduction, usually occurring in July and consisting of one young per year, takes place in rock crevices, caverns, or buildings. Foraging bouts occur well after sunset, after solar radiation has ceased (Gould, 1961). Pocketed free-tailed bat was observed foraging over the USACE Reach 9 2A project and suitable roosting habitat is not present within the project area.

3.3 WATER RESOURCES AND HYDROLOGY

The Alcoa Dike Project (Proposed Action) is part of the Prado Basin flood control improvements under the Santa Ana River Mainstem Project (SARP), which was analyzed and approved in the 2001 Final SEIS/EIR. As described in the 2001 Final SEIS/EIR (see Section 1.4.3), the Corps and the Orange County Flood Control District (OCFCD) previously determined that the Alcoa Dike component of the SARP would have no significant effects related to water resources and hydrology; therefore, this issue area was not assessed in the 2001 Final SEIS/EIR. For the purposes of this SEA and EIR Addendum, this section provides information on the affected environment for water resources and hydrology, as relevant to the Proposed Action, which includes design alterations to the previously approved Alcoa Dike. This discussion is based on the *1988 Phase II GDM/SEIS* for the SARP, as well as other relevant resources and agency materials, and updated information and data where applicable.

3.3.1 General Setting

The Proposed Action is located entirely within the Prado Flood Control Basin's Temescal Wash drainage area. The Prado Flood Control Basin is a flood improvement project on the main stem of the Santa Ana River. The Prado Basin is located within the Santa Ana River Basin, which encompasses parts of Orange, San Bernardino, and Riverside Counties (the Proposed Action is located in Riverside County). This area is within the jurisdiction of the Santa Ana Regional Water Quality Control Board (RWQCB) and is subject to management direction of the Water Quality Control Plan (Basin Plan) for the Santa Ana Region.

The boundaries between California's nine water quality control board regions are usually hydrologic divides that separate watersheds, but the boundary between the Los Angeles and Santa Ana Regions is the Los Angeles County Line (Santa Ana RWQCB, 1995a). This is a political line and does not reflect hydrologic behavior; therefore, part of the Pomona area in Los Angeles County drains into the Santa Ana Region, and in Orange County, part of the La Habra area drains into the Los Angeles Region (Santa Ana RWQCB, 1995a). The east-west alignment of the crest of the San Gabriel and San Bernardino Mountains separates the Santa Ana River basin from the Mojave Desert, which is part of the Lahontan Basin. In the south, the regional boundary divides the Santa Margarita River drainage area from that of the San Jacinto River, which normally terminates in Lake Elsinore (Santa Ana RWQCB, 1995b).

The Santa Ana River Basin is the largest watershed in southern California, with a drainage area of about 2,670 square miles. The watershed is separated into an upper and a lower basin divided by Prado Dam and Reservoir. The project area is located primarily along Temescal Creek/Temescal Wash, one of the Santa Ana River tributaries that flows into the Prado Basin Reservoir upstream of the Prado Dam embankment. Prado Dam was constructed at the convergence of Chino Creek, Cucamonga Creek, Temescal Wash, and the Santa Ana River. The basin behind Prado Dam includes these watercourses and storage capacity upstream of the dam to the current elevation of 556 feet, comprising an overall area of approximately 11,600 acres. The Santa Ana River downstream of Prado Dam is currently being prepared to allow for release of up to 30,000 cubic feet per second (cfs).

The climate in this area is Mediterranean with hot, dry summers, and cooler, wetter winters. Most precipitation occurs between November and March, and is characteristically in the form of rainfall, although snow may occur at higher elevations. Under natural conditions, much of the Santa Ana River and its tributaries would be intermittent with little or no flow in the summer months, except in areas with high groundwater. The urbanization of the valley areas of the Santa Ana River Basin has significantly increased runoff into the river and tributaries. Rainfall occurring over an urbanized part of the basin generates higher peak discharges with a shorter peaking time and a greater volume than if it occurred over the natural basin (USACE, 1988 [p. IV-3]). Water from the upper Santa Ana River contributes to municipal and domestic supply, agriculture, groundwater recharge, hydropower generation, water contact and noncontact recreation, as well as fresh water and associated habitats (USACE, 1988 [Attachment 1: Draft Fish and Wildlife Coordination Act Report]).

3.3.2 Temescal Wash and Santa Ana River

Temescal Wash, also known as Temescal Creek, originates in Lake Elsinore (Riverside County) as Elsinore Spillway Channel, flowing northwest for a length of 29 miles to its confluence with Santa Ana River in Prado Reservoir within the city of Corona, CA (Figure 3.3.2-1). It is the largest tributary to the Santa Ana River. The Elsinore Valley Municipal Water District develops the operating procedures for Lake Elsinore. According to the final report on these operating procedures developed in 1995, the maximum outflow into Temescal Wash allowed from the lake is 1,000-cfs.

Due to significant elevation differences within the Temescal Wash watershed, the nature of vegetation varies considerably within the watershed. In the upper reaches, i.e. above elevation 5,000-feet in the San Bernardino Mountains, pine, fir, juniper, and oak are found scattered throughout a chaparral cover of manzanita, scrub oak, and sage brush. At the lower elevations (foothills and lower slopes), scattered scrub oak, sagebrush, and annual range grasses dominate the vegetation type. The land use in the watershed also varies. Most of the watershed can be considered as agricultural or national forest, consisting mainly of dwarf shrub type vegetation. Commercial development covers the drainage area

sparsely, primarily around Lake Elsinore and Corona. The dominant hydrologic soil group (HSG) is D which consists chiefly of clay soils with high runoff potential.

The Santa Ana River originates in the San Bernardino Mountains and travels southwest approximately 60 miles where it reaches the Pacific Ocean near Huntington Beach. Urban runoff and effluent from wastewater treatment plants, as well as naturally occurring high groundwater levels, contribute substantially to the perennial flow that occurs in the Prado Basin and in the project area.

The Santa Ana River serves several major purposes to the economic well-being and environmental values of the region. It provides extremely important wildlife habitat and supports aquatic organisms and several endangered species. Key items of importance to the inhabitants of Orange County are the issues of flood control and water supply. All of these beneficial uses have influenced the design of projects that have been planned and constructed to manage the flows in the river.

Approximately half of the base flow of the Santa Ana River receives treatment using artificial wetlands upstream from Prado Dam to remove nitrogen and other contaminants. On average, approximately 200,000 acre-feet per year (afy) of natural stream flow passes through Prado Dam into Orange County. Much of this flow is diverted downstream to basins operated by the Orange County Water District (OCWD), for the purpose of recharging underlying groundwater basins which provide the local water supply in that area. Summer flows in the Santa Ana River normally reach the recharge basins downstream of the Imperial Highway Bridge and rarely flow beyond the basins to Burris Pit. Water in this portion of the river is a blend of highly treated wastewater effluent, irrigation runoff water, imported water purchased for groundwater recharge, and groundwater forced to the surface by underground barriers. During periods of rainfall, particularly during the winter months (December to March), storm runoff bypasses the recharge basins and is transported in the river channel to the ocean. Historically, the Santa Ana River has been considered one of the greatest flood hazards in the west due to the potential property damage that would occur in response to a levee breach. New flood protection improvements recently constructed and underway have aimed at reducing the risk of flooding. (USACE, 2001)

Surface Water Quality. As described in the *1988 Phase II GDM / SEIS*, water quality within and downstream of Prado Basin is determined by various contributors, including: Cucamonga Creek, Chino Creek, Temescal Creek, Santa Ana River, rising groundwater, municipal wastewater treatment plant effluent, mountain and lowland runoff, storm discharge, State Water Project discharges, and non-point sources such as urban and agricultural runoff. Per the National Water Quality Assessment (NWQA) Program, administered by the U.S. Geological Survey (USGS), the quality of surface and ground water in the Santa Ana Basin becomes progressively poorer as water moves along “hydraulic flow-paths,” with the highest quality water associated with tributaries flowing from surrounding mountains and ground water recharged by these streams (NWQAP, 2011). Water quality may be altered by a variety of factors including but not limited to: consumptive use, importation of water high in dissolved solids, run-off from urban and agricultural areas, and the recycling of water within the basin.

Waterways in the Santa Ana River Basin are listed on the 2006 Clean Water Act (CWA) Section 303(d) List of Water Quality Limited Segments Requiring Total Maximum Daily Loads for the following pollutants: pathogens (Chino Creek, Reach 1 and Reach 2; Mill Creek, Prado Area; Santa Ana River,

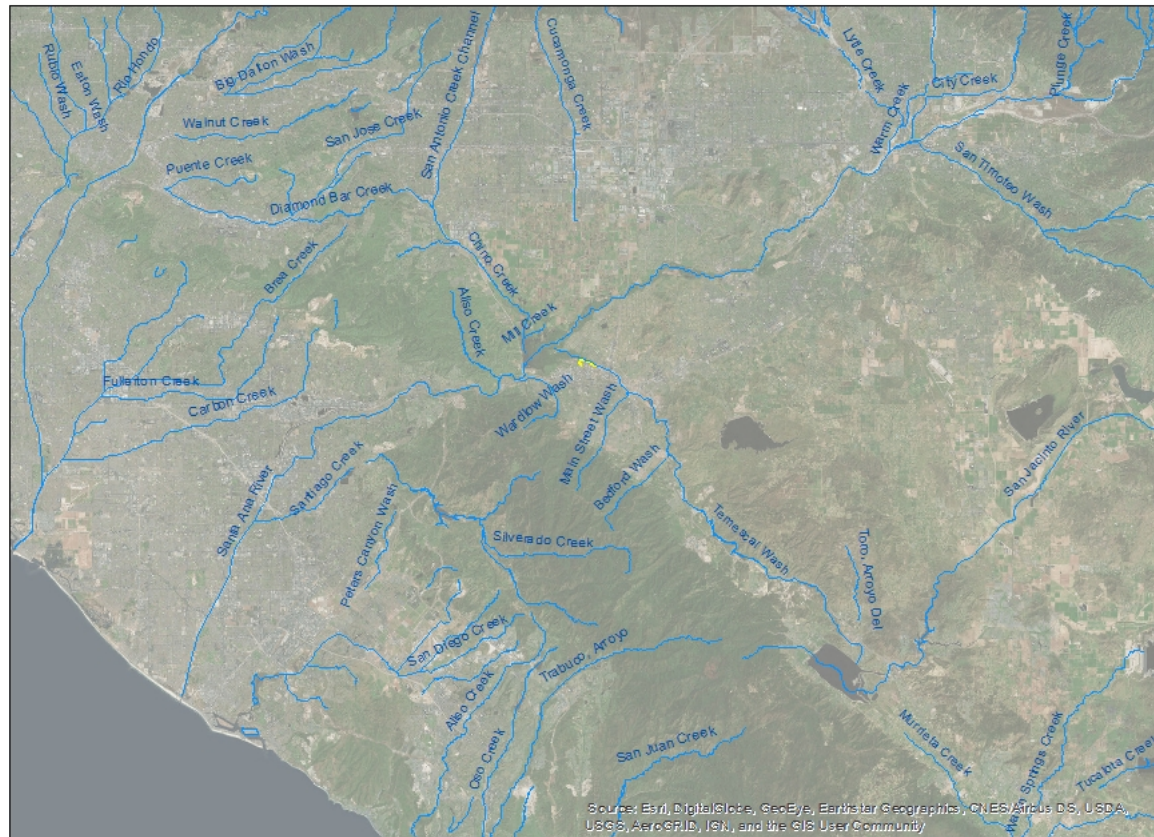


Figure 3.3.2-1 Temescal Wash and Santa Ana River

Reach 3; Prado Park Lake), high coliform count (Chino Creek, Reach 2; Cucamonga Creek, Valley Reach), and nitrate (Santa Ana River, Reach 3) (Santa Ana RWQCB, 2006). These pollutants most likely originate from non-point agricultural and urban sources that commonly occur throughout the watershed.

3.3.3 Groundwater

Groundwater is the main source of water supply in the Santa Ana River watershed, providing about 66 percent of the consumptive water demand. Inland aquifers underlie roughly 1,200 square miles of the watershed upstream of Prado Dam, which coastal aquifers underlie roughly 400 square miles downstream of Prado Dam. Thickness of these aquifers ranges from several hundred to more than 1,000 feet. Depth to ground water ranges from several hundred feet below ground surface near the mountains to near land surface along rivers, wetlands, and in the coastal plain. (NWQAP, 2011)

The proposed Alcoa Dike location is underlain by the Inland Santa Ana Basin Subunit (Inland Basin). As described in the *1988 Phase II GDM / SEIS*, this area contains upwards of 1,000 feet of mostly recent alluvial deposits covering the irregular bedrock floor. In the region around the City of Corona, where the Proposed Action is located, alluvium has been derived mostly from the Santa Ana Mountains. The sediments were laid down on alluvial fans and plains by streams draining the highland areas and consist generally of stringers and lenses of sand and gravel separated by layers of silt and clay.

Groundwater Quality. The Inland Basin is characterized by an unconfined aquifer system in which high-quality recharge is distributed over a broad area near the mountain front. As groundwater moves toward areas of discharge, water quality is determined by overlying land use activities. Other factors that influence groundwater quality in this area include interaction with the Santa Ana River, discharge of recycled wastewater to the river, and use of imported water in the basin. (USGS, 2002)

3.4 EARTH RESOURCES

For the purposes of this SEA, the following section provides information on the affected environment for earth resources (including geology, soils, and seismicity), with respect to the Proposed Action and the surrounding area. This discussion of earth resources is based on information provided in the 2001 SEIS/EIR, the *1988 Phase II GDM / SEIS* for the Santa Ana River Mainstem Project, as well as other relevant resources and agency materials, which are incorporated by reference throughout this section.

3.4.1 General Setting

As described in the *1988 Phase II GDM / SEIS*, the Corps has conducted numerous geotechnical and field investigations in the Prado Basin since the 1930's, including mapping of the various geologic formations and exploring the subsurface to determine the nature and extent of soil and bedrock materials, as well as the character of local faults. Prado Basin is situated at the southwestern edge of the Upper Santa Ana Valley, a broad inland alluvial plain which is part of the larger South Coastal Basin of southern California. This area is bounded to the north and northeast by the San Gabriel and San Bernardino Mountains, to the south by the San Timoteo Badlands, a series of granitic hills, and a low bedrock plateau, and to the west and southwest by the Chino Hills and Santa Ana Mountains. (USACE, 1988 [Appendix B, p. B-II-1])

The Proposed Action area is located entirely within the Prado Flood Control Basin of Riverside County, California. The borrow area that would be used in construction of the Proposed Action is located approximately 1.5 miles west of the project site. Bedrock does not outcrop within the limits of the borrow areas, or along the Alcoa Dike alignment. Geotechnical investigations conducted in 1980 identified

sandstone representative of the Sycamore Canyon member of the Puente Formation at an average depth of 35 feet, and up to 75 feet beneath the borrow area and at unknown depths along the Alcoa Dike alignment. Uplift of this region occurred during the past two- to three million years, and deformed with Puente formation with extensive warping and faulting. Holocene (recent) alluvial materials were present along active stream channels and associated floodplain deposits of the Santa Ana River, Temescal Wash, and other water courses including incised stream channels on the Corona compound alluvial fan. Older, generally Late Pleistocene-age alluvial sediments were present as terrace deposits along the northeastern flank of the Santa Ana Mountains and along the Santa Ana River, as well as alluvial fan deposits in the Corona area. (USACE, 1988 [Appendix B, p. B-II-4])

3.4.2 Geology and Soils

Soils in the Prado Basin are largely derived from the alluvial materials that dominate the valley floor and slopes. Consequently, they are generally light, sandy, highly permeable, and easily eroded. As such, the alluvium which characterizes the streambed of the Santa Ana River has been laid down over periods of river meandering and floodplain functions. The upper portions of Santa Ana River streambed are rocky, with soils consisting of finer sands and silts throughout the middle and lower portions of the river. Soils of the coastal plain are similar to those of the middle and lower portions of the Santa Ana River. Soils in the project area are derived from the alluvial materials that dominate the valley floor and slopes. These soils are not considered prime farmland within the project area. (USACE, 2001)

As described in the Geotechnical Appendix (Appendix B) to the *1988 Phase II GDM/SEIS*, the proposed Alcoa Dike foundation is divided into two areas. Along Rincon Street between stations 10+00 and 52+00, the foundation consists of brown silty gravelly sands (SM) and sands (SP) with a five-foot layer of clayey sand (SC) approximately 16 to 23 feet below the ground surface. The silty gravelly sand is of loose to medium density, with Standard Penetration Test (SPT) blow counts from eight to 19 and an average of 13 blows/ft. The materials increase in coarseness with depth and are sandier and looser between stations 49+00 and 52+00. Along Smith Avenue between station stations 52+00 and 60+50, the foundation consists of a 22- to 27-foot thick layer of reddish brown sandy clay (CL) underlain by a brown silty gravelly sand (SP-SM). Groundwater was encountered at elevation 533 feet, approximately 11 feet below ground surface. The sandy clay is medium stiff above the water table with SPT blow counts ranging from zero to 16, with an average of eight. Below the water table, the sandy clay is very soft to soft, with SPT blow counts ranging from zero to six, with an average of three blows/ft. (USACE, 1988 [p. B-IX-12])

The borrow area that would be used during construction of the proposed Alcoa Dike consists of two predominant material types. The upper layer, or potential Zone II material, varies in thickness from 1.5 to 37 feet and consists of cohesive silts, clays, sandy silts, and clays, and silty, clayey sands. Zone I materials below the potential Zone II materials consist predominantly of coarse-grained silty and clayey gravelly sands and sandy cravels interspersed with lenses and layers of silts and clays and occasional cobbles up to eight inches. (USACE, 1988)

3.4.3 Seismicity and Faulting

Seismic faults are plane-like surfaces on which movement of the earth's rock formations and soils can occur. Faults generally cut through multiple stratigraphic formations at angles. When movement occurs on fault planes, propagation of seismic waves occurs; such seismic events introduce a certain risk of infrastructure damage due to earthquakes that are caused by the fault movements.

The seismic environment in southern California is largely defined by the San Andreas Fault, which trends in a northwest-southeast alignment. Land to the west of the San Andreas Fault is drifting north, which builds stresses throughout the region. These stresses are eventually relieved by movement along the San Andreas and other southern California faults. The regional stress accumulated is not equally distributed among faults, as some move more frequently than others. Other major northwest-southeast trending faults in the area include the San Jacinto, Whittier-Elsinore, and Newport-Inglewood. Many smaller and considerably less active or apparently inactive faults exist among the aforementioned larger faults. The seismic environment relevant to the Proposed Action is dominated by two fault zones, the San Andreas and the Whittier-Elsinore. The project area is located within a zone of potential surface fault offsets and ground cracking that could be triggered by an event along the Whittier-Elsinore fault zone. (USACE, 1988 [Appendix B, p. B-IV-2, -4])

Research into earthquake probabilities by the Corps determined that important seismic characteristics of the Whittier fault zone the following:

- Maximum probable earthquake is 6.9 M (earthquake magnitude);
- Could cause up to 19 feet of horizontal offset;
- Maximum site acceleration from an earthquake estimated is 0.55 g (g is the force of gravity; an acceleration of 1 g is equal to a force of 32 feet/second/second); and
- Maximum measured site acceleration was 0.08 g (USACE, 2001).

Overall, the project area has a 10 percent probability in 50 years of exceedence of 0.5 to 0.6 g from an earthquake event of M 6.8. Such an event most likely would occur on either the Whittier or Chino-Central Avenue Faults. (USACE, 2001)

Although the project is located in a seismically active region, this area is generally characterized by diffuse and non-significant, low-magnitude seismicity. The *1988 Phase II GDM/SEIS* describes that four ancient landslides have been identified along the eastern slopes of the Chino Hills, located at the western edge of Prado Basin. These landslides are fairly limited in size, varying from 200 – 800 feet in width and 300 – 800 feet in length. (USACE, 2008 [Appendix B])

3.5 LAND USE

3.5.1 General Setting

The majority of the proposed project site currently consists of vacant land that consists of non-native grasslands, non-native woodlands, and riparian scrub; and the southwest end of the proposed project would traverse Butterfield Park, which is 43.5 acres and consists of nine softball fields, a soccer field, a jogging course, a picnic area, playground equipment, and restrooms. Construction of the proposed project would eliminate one of the softball fields. The Corona Municipal Airport is located immediately west of the project area. Other existing land uses surrounding the proposed project include light industrial development directly south, and single family residential development ranging from 500 to 1,200 feet to north.

The proposed project site is located entirely within the City of Corona. The majority of the site is within the Open Space/General (OS/G) land use designation of the City's General Plan. This designation applies to "...lands permanently committed or protected for open space purposes due to their value as habitat, topography, scenic quality, public safety (e.g., flood control channels), or comparable purpose" (Corona,

2007). The southwest end of the project site is within the Park land use designation and the southeast end is within the Light Industrial land use designation. The City's General Plan considers the Park designation as part of the Public and Institutional designation, which also includes schools and various civic facilities. The Light Industrial designation "...accommodates various low intensity, nonpolluting types of manufacturing operations, research and development, e-commerce, wholesale activities, and distribution facilities... intended to provide an employment base for Corona's residents"(Corona, 2007).

The majority of the proposed project site is within the Agricultural zone of the City of Corona's Zoning Ordinance. The southwest end of the project site is within the Open Space zoning designation, and the southeast end is within the Light Industrial zoning designation. In addition, the entire site is within the Federal Emergency Management Agency's (FEMA) 100 Year Flood Zone. (Corona, 2012)

The staging area along the southeast portion of the project site would affect vacant land at the corner of Lincoln Avenue and Rincon Street. There is light industrial development south of the proposed staging area, and a riparian area that would separate the staging area from single family residential development located approximately 600 feet to the north and east.

The project area is also within the boundaries of *Western Riverside County Multi-Species Habitat Conservation Plan (MSHCP)*, which is a comprehensive, multi-jurisdictional plan focusing on conservation of species and their associated habitats in the western portion of the County. The MSHCP is one of several large, multi-jurisdictional habitat-planning efforts in southern California with the overall goal of maintaining biological and ecological diversity within a rapidly urbanizing region, and is intended to allow the County and its cities to better control local land-use decisions and maintain a strong economic climate in the region while addressing the requirements of the State and federal Endangered Species Acts.

3.6 AESTHETICS

3.6.1 General Setting

The Proposed Action is in the vicinity of the Temescal Creek and the Lower Santa Ana River in Riverside County. Temescal Creek is approximately 29 miles in length, originating in Lake Elsinore and flowing northwest until its confluence with Santa Ana River in the Prado Flood Control Basin. The Santa Ana River is an approximately 100-mile long waterway that runs from the San Bernardino Mountains to Huntington Beach in southern California. These rivers and associated riparian habitats provide visual relief from the urbanization of the surrounding cities of Yorba Linda, Anaheim Hills, Corona, and unincorporated Riverside County. The Lower Santa Ana River runs from Prado Dam, in Riverside County, to its terminus approximately 30 miles downstream, at Huntington Beach, Orange County.

The proposed project would be located within the City of Corona. The greater project area is surrounded by the Prado Flood Control Basin to the west, single family residential development to the northeast, and light industrial development south of the project site. The aesthetics within the project area are focused on views from Butterfield Park, Prado Regional Park, and the residential development.

Remnant aesthetically pleasing areas within the vicinity of the proposed project area include the undeveloped riparian areas along the river, Prado Regional Park, and Chino Hills State Park located approximately 3.5 miles west of the project site.

3.7 RECREATION

3.7.1 General Setting

Recreational resources and opportunities available in the project area are generally dispersed recreation such as walking, biking, and outdoor enjoyment, while recreational uses that occur in the vicinity of the project area include the Corona Municipal Airport, Butterfield Park, Clearwater Sports Fields, Auburndale Park, Fairview Park, Stagecoach Park, River Road Park, Contreras Park, San Bernardino County's Prado Regional Park and the planned Santa Ana River Trail & Parkway.

Table 3.7-1 lists the amenities available at each of the parks and recreation facilities listed above in the vicinity of the project area.

Table 3.7-1 Recreation Facilities and Amenities in Project Vicinity

Facility	Amenities
Corona Municipal Airport	Recreational airport with no commercial flights. Home to 350-400 general aviation aircraft.
Butterfield Park	Softball fields, soccer field, jogging course, barbecue, covered shelters, playground equipment, picnic areas, restrooms, drinking fountains.
Clearwater Sports Fields	Sports field.
Auburndale Park	Tennis courts, basketball court, swimming pool, barbecue, covered shelter, picnic area, restrooms.
Fairview Park	Softball field, basketball court, barbecue, covered shelter, playground equipment, picnic area, restrooms, drinking fountain.
Stagecoach Park	Playground equipment.
River Road Park	Barbecue, covered shelter, playground equipment, picnic area, restrooms, drinking fountains, bicycle rack.
Contreras Park	Basketball court, horseshoe pit, barbecue, picnic area, drinking fountain.
Prado Regional Park	Fishing, camping, hiking, biking and nature trails, disc golf, picnic facilities, meeting room, two 18-hole golf courses, Olympic shooting range, horseback riding, archery, playground with water play park, horseshoe pits, restrooms.
Santa Ana River Trail & Parkway	Environmental work completed February 2012. Construction projected to start in 2018.

3.8 NOISE

3.8.1 General Setting

Noise Environment in the Project Area

The area surrounding the Alcoa Dike site is characterized by a wide variety of ambient noise sources. Along the southern periphery of the basin where commercial and industrial facilities as well as freeways are found, noise levels are generally high. These levels drop off substantially towards the central portions of the Alcoa Dike site, which is open space. Residential use to the north is expected to typically generate noise levels associated with personal vehicle and outdoor use activities. The primary noise sources within the Alcoa Dike project area includes: airport noise from Corona Municipal Airport located approximately 2,000 feet west of the site; rail traffic from Atchison Topeka & Santa Fe (AT&SF) Railroad lines bordering the site to the south; traffic on SR-91 to the south; traffic on Smith Avenue to the west and Lincoln Avenue to the east; and industrial development in the City of Corona to the south.

Sensitive Receptors in the Project Area

Some land uses are considered more sensitive to elevated noise levels because of the purpose and intent of the use. Places where people are meant to sleep, or places where a quiet environment is necessary for the function of the land use, are normally considered sensitive. For instance, residential areas, schools, places of worship, and hospitals are more sensitive to noise than are commercial and industrial land uses. The nearest sensitive receptors to the Alcoa Dike site include residential development approximately 600 feet north of the site. Additional sensitive receptors are located north of this residential area, including Auburndale Intermediate School, George Washington Elementary School, and Victress Bower School for Exceptional Students, which are located approximately 2,000 feet north of the site (refer to Section 4.5 Land Use for a detailed description of adjacent land uses).

3.9 SOCIOECONOMICS

The Proposed Action would be located within the City of Corona. For the purposes of this discussion of Socioeconomics, demographic data for the City is presented below, in Table 3.9-1.

Table 3.9-1 Demographic Data for the City of Corona

	Subject	2010 Estimate
Population	Total Population	161,614 (2012-2016 ACS 5-year estimate)
	Average Family Size	3.26 (2012-2016 ACS 5-year estimate)
	Median Age	34.4 (2016 ACS 1-year estimate)
Housing	Total Housing Units	51,331 (2012-2016 ACS 5-year estimate)
	Vacant Housing Units	2,224
	Average Household Size	3.27
Employment and Income	Unemployment Rate	4.6% (City of Corona website)
	Median Household Income	\$72,309 (2012-2016 ACS 5-year estimate)
Ethnicity	White	69.9% (2012-2016 ACS 5-year estimate)
	Black or African American	4.8% (2012-2016 ACS 5-year estimate)
	American Indian and Alaska Native	0.5% (2012-2016 ACS 5-year estimate)
	Asian	11.5% (2012-2016 ACS 5-year estimate)
	Native Hawaiian and Other Pacific Islander	0.5% (2012-2016 ACS 5-year estimate)
	Two or more races	4.3% (2012-2016 ACS 5-year estimate)
	Persons of Hispanic or Latino Origin	43.2% (2012-2016 ACS 5-year estimate)

Source: US Census, 2010, unless otherwise noted

The data presented above was collected by the 2010 American Community Survey (ACS) 1-year estimates and 2012-2016 ACS 5-year estimates of the U.S. Census. These estimates are based on data collected between 2008 and 2016, and do not represent a single point in time.

Population

The City of Corona has an estimated population of 161,614, representing 6.8 percent of the Riverside County population. In addition, the median age in the City is 34.4, which is slightly lower than the County median age of 35.3 (2016 American Community Survey 1-year estimate). This difference may be attributable to the larger number of family aged persons (children under 18 and parents between the ages of 25 and 44) residing in the City of Corona.

Housing

The 2012-2016 ACS estimated that 51,331 housing units were located in the City of Corona, while a total of 39,271 housing units were noted in the 2000 Census. This represents a 30.7 percent increase in housing units since 2000.

Employment and Income

The unemployment rate for the City of Corona is estimated to be 4.6 percent. In comparison, the Riverside County unemployment rate is 5.6 percent (Bureau of Labor Statistics). The median household income is \$72,309 in the City, as opposed to the County's median which is \$57,972. The lower unemployment rate and higher median income suggest that the City of Corona is more affluent than Riverside County as a whole. (US Census, 2010)

Ethnicity

According to the 2012-2016 ACS 5-year estimate, the ethnic makeup of the City consists of Whites at 69.9 percent and Hispanics at 43.2 percent. These totals are greater than 100 percent because Hispanics may be of any race, and therefore, are also included in other applicable race categories. Otherwise, the ethnic makeup of the City consists of Asians at 11.5 percent, African-Americans at 4.8 percent, American Indian and Alaskan Native at 0.5 percent, and Native Hawaiian and Other Pacific Islander at 0.5 percent.

3.10 TRANSPORTATION

3.10.1 General Setting

Major roadways providing regional access to the Alcoa Dike project area include State Route 91 (SR-91) and Interstate 15 (I-15). These roadways are maintained by Caltrans. Local access to the site would be provided by Lincoln Avenue, which has on/off ramps to SR-91 directly south of the Alcoa Dike area. Construction vehicles would access the site from Butterfield Drive, Rincon Street, Auburndale Street, Smith Avenue, Lincoln Avenue and River Road. These local roadways are maintained by the City of Corona, with the exception of the River Road Bridge over Temescal Creek, which is maintained by Riverside County Transportation Commission. The following summarizes the lane configurations and directional configuration of roadways providing both regional and local access to the Alcoa Dike project area:

- **SR-91** is an eight lane east-west freeway along the southern border of the proposed project site.
- **I-15** is an eight lane north-south freeway merging with SR-91 to the east of the proposed project site.
- **Lincoln Avenue** is a two lane north-south roadway located directly east of the proposed project site and travels from SR-91 northward where it veers east past the site and connects with River Road and dead ends at Hamner Avenue just west of I-15.
- **Butterfield Drive** is a two-lane east-west roadway connecting with Smith Avenue and providing access to the western portion of the site.
- **Rincon Street** is a two lane roadway traveling northwest-southeast and connects Smith Avenue to Lincoln Avenue, providing central access to the site.
- **Auburndale Street** is a two lane roadway traveling southwest-northeast and bisects the site, connecting with Rincon Street.

- **Smith Avenue** is a two lane roadway traveling southwest-northeast and connects Butterfield Drive to Rincon Street, providing central access to the site.

Annual average daily traffic (AADT) volumes measured for State Routes and local roadways in the vicinity of the Alcoa Dike project area are presented in Table 3.10-1.

Table 3.10-1 Annual Average Daily Traffic on Selected Roadways in the Proposed Project Area

Location	2010 AADT
SR-91 west of I-15	233,000
I-15 junction with SR-91	158,000
Lincoln Avenue north of SR-91	18,400 ¹
Butterfield Drive west of Smith Avenue	1,800 ¹
Rincon Street west of Lincoln Avenue	7,500 ¹
Auburndale Street north of Rincon Street	2,400 ¹
Smith Avenue south of Rincon Street	13,100

¹ Year 2009 AADT

Source: Caltrans 2016, City of Corona 2012

Other transportation related land uses in the vicinity include Corona Municipal Airport located approximately 2,000 feet west of the site, and the Atchison Topeka & Santa Fe (AT&SF) Railroad lines aligned east-west directly adjacent to the southernmost border of the site. Besides freight operations, Metrolink commuter trains also utilize this rail line. The proposed project is located roughly equidistant from two Metrolink stations – West Corona Metrolink Station approximately 1.3 miles west of the western terminus of the proposed Alcoa Dike, and the Metrolink North Main Corona Station at 250 East Blaine Street approximately 1.1 miles east of the eastern terminus of the proposed Alcoa Dike. This rail line is also currently used by Amtrak commuter carrier’s Southwest Chief train, although the train does not stop at either of these stations. According to the Riverside County General Plan, no designated bike paths or pedestrian facilities are currently located within or adjacent to the proposed project site (Riverside County, 2015), although the City of Corona is currently planning a 22-mile multi-use recreational trail segment of the regional “crest to coast” Santa Ana River Trail in the vicinity.

3.11 SAFETY AND HAZARDS

3.11.1 General Setting

This section focuses on existing public health and safety issues with regard to existing flooding potential and problems and recreational safety. FEMA is the Federal agency that advises jurisdictions on floodplain management issues and its mission is to reduce loss of life and property, and protect the nation’s critical infrastructure from all types of hazards through a comprehensive, risk-based, emergency management program of mitigation, preparedness, response, and recovery. When the Prado Spillway is raised and the dam’s water control manual is modified to allow water storage to extend up to 566’ elevation, this area would have the potential to be inundated during extreme flood events, even though much of the area is currently prone to flooding and has been flooded historically as well. The proposed project offers protection for public and private development in the area on the “land side” of the dike (Figure 2-1), while leaving the flood side of the proposed dike in same condition as current.

3.12 CULTURAL RESOURCES

Cultural Resources are locations of past human activities on the landscape. The term generally includes any material remains that are at least 50 years old and are of archaeological or historical interest. Examples include archaeological sites such as lithic scatters, villages, procurement areas, resource

extractions sites, rock shelters, rock art, shell middens; and historic era sites such as trash scatters, homesteads, railroads, ranches, and any structures that are over 50 years old. Under the National Historic Preservation Act, federal agencies must consider the effects of federally regulated undertakings on cultural resources that are eligible for listing in the National Register of Historic Places (NRHP). Cultural resources that are eligible for listing in the NRHP are referred to as historic properties.

The Alcoa dike project is just one aspect of the larger SARMP. Federal preservation laws require that the agency define the area of potential effect (APE) for an undertaking. The APE is the geographic area within which historic properties may be directly or indirectly affected by an undertaking. In this case, the Corps consulted with the California SHPO regarding the APE for the entire SARMP. The entire APE was surveyed for the presence of historic and prehistoric resources in 1985 by ECOS Management Criteria, Inc. (Brook and Langenwaller, 1985). This survey identified and inventoried NRHP resources along the Santa Ana River from Prado Dam Flood Control Basin all the way to the Pacific Ocean. Beyond the 1985 survey, several additional cultural resource investigations have specifically occurred within the borrow site location.

A total of six (6) archaeological resources have been recorded within the boundaries of the current project area. All six of these sites fall within or near the boundaries of the proposed borrow pit location. Of these resources, four (4) have been determined to be eligible for inclusion on the NRHP. Two of these sites, CA-RIV-1039 and CA-RIV-1044 were excavated in the early 2000s in anticipation of the area being used as a borrow site.

Site Number	Description	NRHP Status	Comment
CA-RIV-3694	Rincon/Pomona	Eligible (D)	Partial Excavation (Foster et al 1995)
CA-RIV-1039	Ashcroft Ranch	Eligible (D)	Excavated (Sternner et al 2004)
CA-RIV-5523	Remnants of farm	Not Eligible	
CA-RIV-5524	Homestead	Not Eligible	
CA-RIV-2802	Adobe Structure	Eligible	Excavated (Foster et al 1995)
CA-RIV-1044	Pate/Carrillo Farm	Eligible (D)	Excavated (Sternner et al 2004)

3.13 PUBLIC SERVICES AND UTILITIES

3.13.1 General Setting

Due to the proposed project's location in the City of Corona and unincorporated Riverside County, the project area includes the typical array of municipal public services and utilities that support residential, commercial, and industrial uses. Public services and utilities serving the area include:

- Fire protection,
- Police protection,
- Schools,
- Natural gas,
- Electricity,
- Water,
- Waste water, and
- Waste disposal and recycling.

3.13.2 Public Services

3.13.2.1 Fire Protection

The City of Corona Fire Department provides a full range of fire protection services to the citizens of Corona. There are currently 7 fire stations located within the City of Corona. Corona Fire Station #3, located at 790 S. Smith Street is the closest to the Project area.

3.13.2.2 Police Protection

The City of Corona provides complete law enforcement to the City population with the Corona Police Department. The Corona Police Department is commanded by a Chief of Police. The Department has 174 sworn officers, 62 full-time support personnel, 9 animal control officers, and approximately 70 volunteers. In order to provide the community with the highest level of service available, the Police Department is administratively divided into three divisions, including: Investigation, Support Services, and Field Services.

3.13.2.3 Schools

The Corona-Norco Unified School District (CNUSD) serves the school needs for the City of Corona. The School District has 47 schools (K-12) and has over 53,000 students enrolled.

3.13.3 Utilities and Service Systems

The proposed project area is served by utility and service systems located in Riverside County and within the City of Corona. A variety of local purveyors in these areas provide and maintain utility and service system facilities associated with electricity, water, stormwater and wastewater, solid waste, and natural gas. Municipally operated lines provide sewer services in the area. Similarly, stormwater flows are conveyed by the flood control facilities within the City of Corona. Underground Service Alert (also known as USA or “Dig Alert”), a non-profit organization supported by utility firms, provides specific information on the location of underground utilities to contractors upon request, prior to construction. Table 3.13-1 summarizes the utilities providers serving the proposed project area.

Table 3.13-1 Utility and Service Providers by Jurisdiction

Jurisdiction	Utility or Service System Provider
City of Corona	Natural Gas– Southern California Gas Company Electricity– City of Corona Utilities; Southern California Edison Water – City of Corona Utilities Wastewater – City of Corona Utilities Solid Waste and Recycling – Waste Management Landfills Used – El Sobrante Landfill

Southern California Gas Company. Information Website: <https://www.socalgas.com/help-center/start-stop-or-transfer-gas-service-online>, accessed on March 9, 2018.

Southern California Edison. Information Website: https://www.sce.com/wps/portal/home/customer-service/movecenter/!ut/p/b1/hc5NCslwFATgs3iCTBtpm2X8S57Yaog822wkKwnU6kl8v1W6VWc38A2MCKIVYYjPdImPdBti_-6hONeklnaOnMyKNyBupGKHHCvG0i0AX6Lxb38S4UOyymhLHITuAQtiHd8YNhaTkAZrO12DzJHJ0HSofFaS6CYwI8P92uLRHr2AveXzkA!dl4/d5/L2dBISeVZ0FBIS9nQSEh/?ecid=web_quicklink-home_TOTO, accessed on March 15, 2018.

City of Corona. Corona Department of Water & Power. Information Website: <https://www.coronaca.gov/government/department-of-water-and-power>, accessed on March 9, 2018.

City of Corona. Refuse and Recycling General Information. Information Website: <https://www.coronaca.gov/government/departments-divisions/maintenance-services/trash-recycling-program>, accessed on March 9, 2018.

Waste Management, 2018. Information Website: https://www.wm.com/us/local/ca/corona/residential?cmp=ag_home_2018-02-23_usa_ca_corona, accessed on March 9, 2018.

A February 2010 Utility Investigation Report for ALCOA Dike was prepared by AECOM for OC Public Works, and a further update was prepared in 2017. Any utilities within project limits will either need to be relocated prior to or during construction, or protected in place.

4. ENVIRONMENTAL CONSEQUENCES

4.1 AIR QUALITY

Significance Threshold

The Proposed Action is similar to the previously approved design alternative and associated sponsor real estate actions except for the changes identified in Table 2.2-1. Therefore, a new impact would only occur if it is associated with the project modifications, or as a result of a changed environmental condition. Impacts would be significant if the Proposed Action would cause one or more of the following conditions to occur:

- Exceeds SCAQMD daily emissions thresholds
- Exceeds General Conformity Rule *de minimis* thresholds.

The proposed project is designed for flood risk management (FRM) protection.

Assumptions: Dike construction work proposed project area would involve approximately 130 acres

Total Project Construction work: Over an approximate 2 year work period (November 2018 through November, 2020) covering approximately 650 workdays. Daily construction assumed a workday during daylight hours with a 6 days (Monday through Saturday) work week. The project would be completely in place and completely operational in year 2021. Phases of work would include Demolition, Site Preparation, Grading, Construction, Paving, and Coating.

Construction equipment for the proposed project would likely include a combination of concrete pumpers, water trucks, waste trucks, haul trucks, scrapers, tractors/loaders/backhoes, dozers, cranes, soil compactors, rollers, pavers, paving equipment, graders, chippers, excavators, forklifts, concrete/industrial saws, welding equipment, and air compressors.

CalEEMod 2016.3.2 program calculated emissions for proposed project, calculating maximum daily emissions, in units of pounds per hour (lbs/hr), and maximum annual emissions, in units of (tons per year), for criteria pollutants (ROG); NO_x; CO; SO₂; PM₁₀; PM_{2.5}), and annual greenhouse gas (GHG/CO₂e) in units of Metric Tons/yr (MT/yr). CalEEMod uses sources such as the United States Environmental Protection Agency (USEPA) AP-42 emission factors, and California Air Resources Board (ARB) vehicle emission models. The summer lbs/day emissions for the proposed project are typically higher in air pollutant air emissions when compared to the winter lbs/day and therefore, the summer lbs/day are referenced as the maximum lbs/day instead of the winter lbs/day. The proposed project CalEEMod air quality calculations are in Appendix A.

The proposed project would result in air quality construction impacts daily and during each year of construction. See Table 4.1-1 and 4.1-2 below for comparison of estimated daily emissions (maximum daily construction lbs/day) to SCAQMD threshold and comparison of estimated annual emissions (maximum construction tons/year) to Federal threshold.

Table 4.1-1 Comparison of Proposed Project Daily Construction Emissions to SCAQMD Lbs/Day

Construction	ROG	NOx	CO	SO2	PM10	PM2.5	GHG/CO2e (MT/yr.)
Proposed Project Maximum Daily lb/day	4.8528	54.7202	34.2888	0.0646	22.6585	12.4028	6,449.9785
SCAQMD Daily lb/day	75	100	550	150	150	55	No criteria unless industrial facilities; 10,000 MT/yr CO2eq for industrial facilities

Daily construction emissions are shown in Table X.X above. Estimated construction emissions are below the SCAQMD thresholds.

Table 4.1-2 Comparison of Proposed Project Annual Construction Emissions to General Conformity *de minimis* Thresholds

Construction	ROG	NOx	CO	SO2	PM10	PM2.5	GHG/CO2e (MT/yr)
Proposed Project, Average Ton/Year	0.5659	5.7923	3.8394	0.007	1.0957	0.6663	614.1535
Federal Ton/Year	100	100	100	100	70	100	Recommends that agencies quantify a proposed agency action's projected direct and indirect GHG emissions, taking into account available data and GHG quantification tools that are suitable for the proposed agency action

Annual construction emissions are shown in Table 4.1-2 above. Estimated construction emissions are below General Conformity *de minimis* Thresholds.

Based on the above, the proposed project construction daily emissions for all air criteria pollutants and GHG/CO₂e would be below the SCAQMD significant threshold, and would result in less than significant impacts. Furthermore, proposed project construction annual emissions are below General Conformity *de minimis* thresholds, and would result in less than significant impacts. With the implementation of air quality (AQ) Environmental Commitments AQ-1 through AQ-22 and Best Management Practices (BMPs), potential daily and annual air construction emission impacts would be reduced. Impacts from emissions would be temporary and would return to pre-project conditions following completion of construction. Based on the above, impacts to daily and annual construction emissions would be less than significant.

Regarding operation and maintenance (O&M) work for the proposed project would more than likely occur only after a major storm or major flood event. The proposed project post O&M revegetation would be re-established through self-sustainability and would more than likely not require recurring restoration O&M. Based on the above, the proposed project would result in negligible air quality O&M impacts for daily and annual emissions. See Table 4.3 and 4.4 below for comparison of estimated daily emissions (maximum daily operation lbs/day) to SCAQMD threshold (Table 4.1-3) and comparison of estimated annual emissions (maximum operation tons/year) to Federal threshold (Table 4.1-4).

Table 4.1-3 Comparison of Proposed Project Daily O&M Emissions to SCAQMD Lbs/Day

O&M	ROG/VOC	NO _x	CO	SO ₂	PM ₁₀	PM _{2.5}	GHG/CO ₂ e (MT/yr)
Proposed Project Maximum Daily lb/day	negligible	negligible	negligible	negligible	negligible	negligible	negligible
SCAQMD Daily lb/day	55	55	550	150	150	55	No criteria unless industrial facilities; 10,000 MT/yr CO ₂ eq for industrial facilities

Daily O&M emissions are shown in Table 4.1-3 above. Estimated O&M emissions are negligible and below the SCAQMD thresholds for all air emission criteria pollutants and GHG/CO₂e. With the implementation of air quality (AQ) Environmental Commitments AQ-1 through AQ-22 and Best Management Practices (BMPs), potential daily air O&M emission impacts would be reduced. Impacts from emissions would be temporary and would return to

pre-project conditions following completion of O&M. Based on the above, impacts to daily O&M emissions would be less than significant.

Table 4.1-4 Comparison of Proposed Project Annual O&M Emissions to General Conformity de minimis Thresholds

O&M	ROG/VOC	NO _x	CO	SO ₂	PM ₁₀	PM _{2.5}	GHG/CO ₂ e (MT/yr)
Proposed Project Average Ton/Year	negligible	negligible	negligible	negligible	negligible	negligible	negligible
Federal Ton/Year	100	100	100	100	70	100	Recommends that agencies quantify a proposed agency action's projected direct and indirect GHG emissions, taking into account available data and GHG quantification tools that are suitable for the proposed agency action

Estimated annual O&M emissions are below General Conformity de minimis Thresholds. With the implementation of air quality (AQ) Environmental Commitments AQ-1 through AQ-22 and Best Management Practices (BMPs) potential annual air O&M emission impacts would be reduced. Impacts from emissions would be temporary and would return to pre-project conditions following completion of O&M. Based on the above, impacts to annual O&M emissions would be less than significant.

Based on the above, the proposed project O&M daily emissions, and O&M annual emissions, would be less than significant.

4.2 BIOLOGICAL RESOURCES

4.2.1 Introduction

The Proposed Action is similar to the previously approved design alternative and associated sponsor real estate actions except for the changes identified in Table 2.2-1. Therefore, a new impact would only occur if it is associated with the project modifications, or as a result of a changed environmental condition.

Impacts would be significant if the Proposed Action would cause one or more of the following conditions to occur:

- A direct adverse effect on a population of a threatened, endangered, or candidate species or the unmitigated loss of designated critical habitat for a listed or candidate species, to the extent that the regional population is diminished.
- An unmitigated, net loss in the habitat value of a sensitive biological habitat or area of special biological significance.
- Substantial impedance to the movement or migration of fish or wildlife.
- Substantial loss to the population of any native fish, wildlife, or vegetation.
- Substantial loss in overall diversity of the ecosystem.

An evaluation of whether an impact on biological resources would be substantial must consider the resource and how that resource fits into a regional or ecological context. Impacts are sometimes locally important but not significant because, although they would result in an adverse alteration of existing conditions, they would not substantially diminish, or result in the permanent loss of, an important resource on a population-wide or region-wide basis.

Impacts to biological resources were evaluated in comparison to those impacts that were originally identified and mitigated for in the 1988 GDM/SEIS and the 2001 Final SEIS/EIR. Any incremental impacts or changes identified herein that are additional to those identified in the previous documents are addressed accordingly.

Direct impacts would occur when sensitive biological resources are altered, disturbed, destroyed, or removed during construction of the Proposed Project. Direct impacts would result from such activities as removal, grading, or brushing of vegetation, or the mechanical crushing from equipment and vehicles. Other direct impacts could include loss of foraging, nesting, or burrowing habitat for wildlife species, and habitat disturbance that results in unfavorable substrate conditions to allow vegetative regeneration or results in the introduction of exotic invasive species.

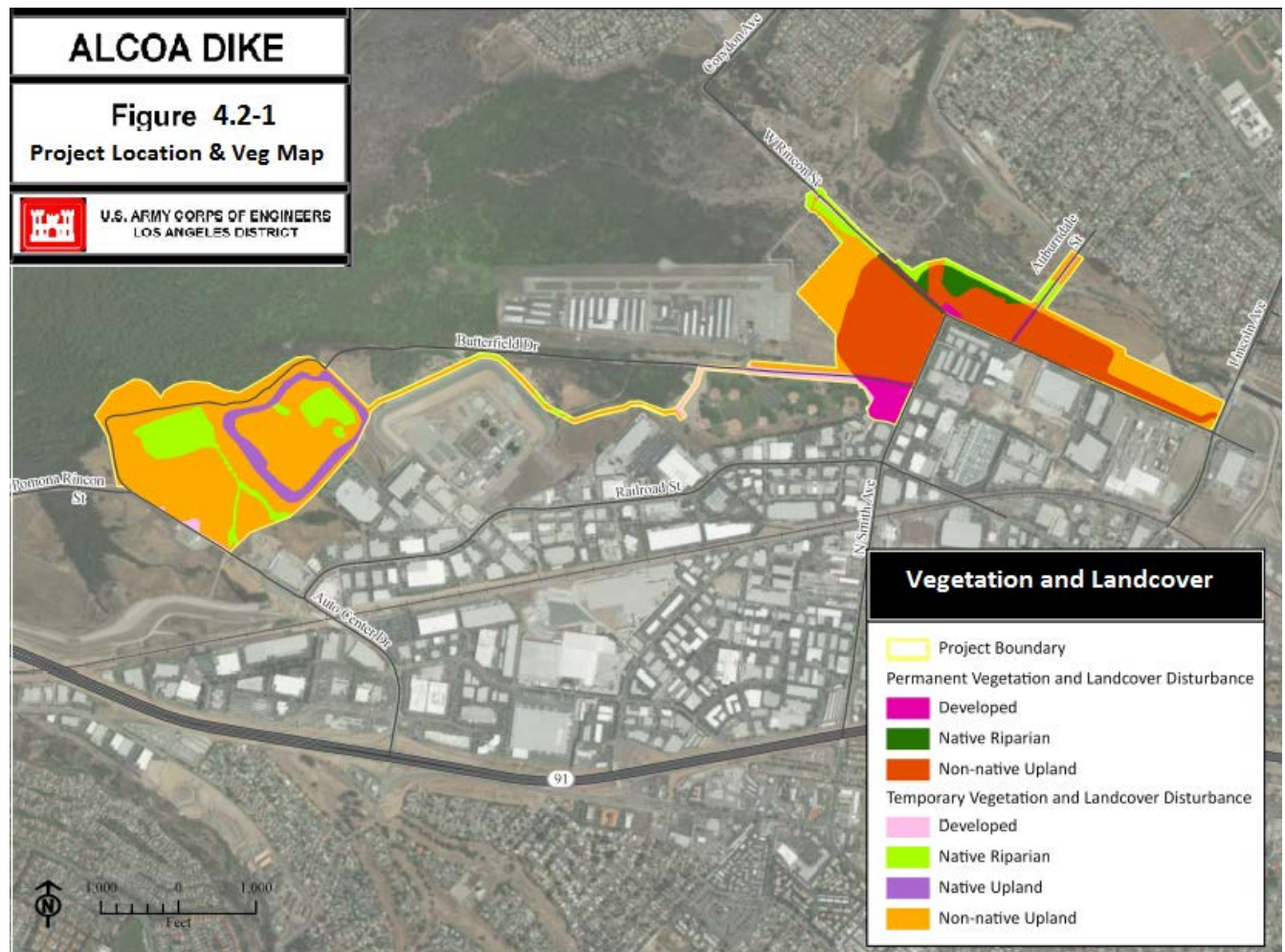
Indirect impacts occur when activities affect biological resources in a manner other than direct impacts. Potential indirect impacts resulting from implementation of the Proposed Project include increased erosion and sedimentation, changes to hydrology, or long-term degradation of natural vegetation communities. These changes may in turn affect vegetation communities and sensitive species.

Both direct and indirect impacts can be classified as either temporary or permanent, depending on the duration of the impact. Temporary impacts may be considered to have reversible effects on biological resources. Permanent impacts are those impacts resulting in the irreversible removal of biological resources such as the permanent removal of habitat.

The following analysis considers direct and indirect impacts associated with the construction, operation and maintenance of the proposed project. Impacts would primarily occur at and adjacent to the project site. Fill material for the construction of the dike would be imported from a borrow site located approximately 1.5 miles west of the proposed project site. Impacts associated with obtaining fill from this site have been analyzed in the 2001 SEIS/EIR. A portion of this site will also be the source of fill material for the nearby Auxiliary Dike Tie-In Phase II Project as addressed in the 2017 SEA/EIR Addendum for that project. Impacts associated with sourcing fill for the proposed project are consistent with those already analyzed and approved in the 2001 SEIS/EIR. The haul route between the borrow site and the

proposed project site would utilize southern existing roadways (Clearwater Drive, Butterfield Drive and so on), whereas designated maintenance roads would occur only on and alongside the dike itself (they would not extend along the haul route).

Project-related impacts to vegetation and special-status plant and wildlife species were previously analyzed in the 1988 GDM/SEIS and the 2001 Final SEIS/EIR. An updated analysis of effects to vegetation and special-status species identified herein are based on the current design. All impacts associated with construction of the Dike (i.e., haul route, staging areas, borrow area) will occur entirely within the temporary construction easement (TCE) that has been identified for the Proposed Alcoa Dike (depicted in Figure 4.2-1)



The 1988 GDM/SEIS included a series of mitigation measures that have been implemented to compensate for impacts of the Prado Dam Embankment, Perimeter Dikes (including the Proposed Alcoa Dike), and other features of the Santa Ana River Flood Control Project. Construction-related environmental commitments from the 1988 GDM/SEIS and the 2001 Final SEIS/EIR, and additional commitments developed for this document, will be implemented. A full list of environmental commitments can be found in Section 6 of this document.

4.2.2 Proposed Action

4.2.2.1 *Vegetation and Habitat*

Vegetation

Implementation of the Proposed Project would result in both direct and indirect effects on upland vegetation within the project area. The Proposed Project would result in direct permanent effects primarily to developed, non-native, and disturbed areas within the Alcoa Dike project area. The loss of these areas would be minor, given the abundance of similar areas in the surrounding landscape and low habitat quality. The project would also result in temporary and permanent impacts to ruderal vegetation (broad-leafed herbaceous plant species that are associated with disturbed or compacted soils), disturbed habitat (includes areas composed primarily of bare ground with a sparse vegetative coverage, generally consisting of black mustard and other non-native vegetation with some sparsely mulefat scrub), and southern willow scrub. Table 4.2-1 provides a description of the habitat types and acreages subject to direct permanent impacts. Direct temporary impacts of the Proposed Project are primarily to non-native grassland, developed, ruderal, and disturbed habitats (Table 4.2-2). Impacts to disturbed habitat, and southern willow scrub account for remaining temporary impacts. Nonnative grassland habitat and mulefat scrub would primarily be impacted by the removal of soil at the borrow site.

Indirect impacts to existing vegetation communities could include alterations in existing topography and hydrology regimes, the accumulation of fugitive dust, disruptions to native seed banks from ground disturbance, and the colonization of nonnative/invasive plant species. Other indirect effects of this disturbance include an increase in the amount of compacted or modified surface that may increase the potential for forceful surface runoff, increased erosion, and potential destruction of intact vegetation outside of the permanent Proposed Project footprint.

The 2001 SEIS/EIR estimated that the Alcoa Dike project element would permanently impact approximately 1.5 acres of riparian scrub habitat (referred to as willow woodland in the 2001 document), and approximately 15.0 acres of non-native grassland habitat (referred to as agricultural fields and pastureland in the 2001 document). It also estimated that the borrow site and haul road would impact 1.7 acres of riparian scrub habitat and 198.6 acres of non-native grassland habitat (USACE, 2001). The project design has since been modified to conform to current engineering requirements that provide adequate flood protection to the public. Table 4.2-1 provides a description of the habitat types and acreages subject to temporary and permanent impacts for the proposed action and the originally approved project design as described in the 2001 SEIS/EIR. Based on the most current information, implementation of the Proposed Action would result in the permanent loss of approximately 5.3 acres of native riparian vegetation, 62.1 acres of non-native upland habitat (non-native grassland and non-native woodland), and 8.1 acres of developed areas. It would also result in temporary loss of approximately 27.2 acres of native riparian vegetation, 123.7 acres of non-native upland habitat (non-native grassland and non-native woodland), 12.6 acres of native upland, and 7.7 acres of developed areas. The non-native and native upland habitats that would temporarily be affected are primarily at the borrow site.

The Proposed Action, based on the current vegetation maps prepared for the Alcoa Dike project, would result in roughly 29.9 more acres of total disturbance compared to the impacts identified in the 2001 SEIS/EIR. Most of this increase is attributed to a larger temporary impact area around the dike and a larger borrow site than previously analyzed.

Table 4.2-1. Vegetation Cover Types within the Project Area

Cover Types	Originally Approved Design ¹				Proposed Project		
	Total Acres	Project Component			Total Acres	Development Impact	
		Dike	Borrow Site	Haul Road		Perm Acres	Temp Acres
Vegetated							
Native Riparian (mulefat scrub)	5.8	1.5	2.6	1.7	32.5	5.3	27.2
Non-native Upland (non-native grassland and woodland)	211.0	15	196.0	0	185.8	62.1	123.7
Native Upland (coastal sage scrub)	-	-	-	-	12.6	0	12.6
Un-vegetated/Developed							
Developed (park)	-	-	-		15.5	8.1	7.7
TOTAL	216.8	16.5	198.6	1.7	246.7	75.5	171.2
¹ = Acreages based on 2001 SEIS/EIR. Borrow Site and Haul Road estimated impact acreages were assumed at the time to be cumulative for several perimeter dikes and other Prado Embankment construction.							

The riparian plant communities in the proposed project area are considered sensitive habitat types for their role in the ecological function of the SAR corridor. These communities play important roles in the life histories for a broad diversity of both common and special-status wildlife species, including the least Bell's vireo. In addition, while non-native annual grasslands are not a protected community they provide important foraging and refugia habitat for a variety of sensitive plants and wildlife species.

Implementation of the Proposed Project would result in both direct and indirect effects to riparian and upland vegetation within the Alcoa Dike Project area. Direct impacts to native plant communities would occur as a result of the removal of vegetation during construction activities. These ground-disturbing construction activities include clearing and grading for the construction of the dike, access roads, ponding areas, road crossings, staging areas, stockpiling, and construction site access. Construction activities may also result in the temporary degradation of habitat values in adjacent areas. This can result from such factors as construction noise, dust, increased human presence, and increased vehicle traffic during the 24-month construction period. Indirect impacts to native vegetation communities, including riparian scrub, could include minor alterations in existing topography and hydrology regimes, erosion and sedimentation if runoff through the project area is not controlled, the accumulation of fugitive dust, disruptions to native seed banks from ground disturbance, and the colonization of these communities by non-native invasive plant species. These indirect impacts will be minimized and mitigated by the use of best management practices and restoration of temporarily disturbed areas with native vegetation.

There are several Corps mitigation sites in close proximity to the project site and the closest site encompasses two of the former wastewater treatment ponds on the northwest side of the Alcoa Dike that runs along the Temescal Wash (depicted in Figure 4.2-2)



The proposed Alcoa Dike project has been designed to avoid impacts to this and other mitigation sites. Neither the footprint of the dike, nor the proposed widening of River Road will directly affect the adjacent mitigation site. Hydrology in the area would also not be affected.

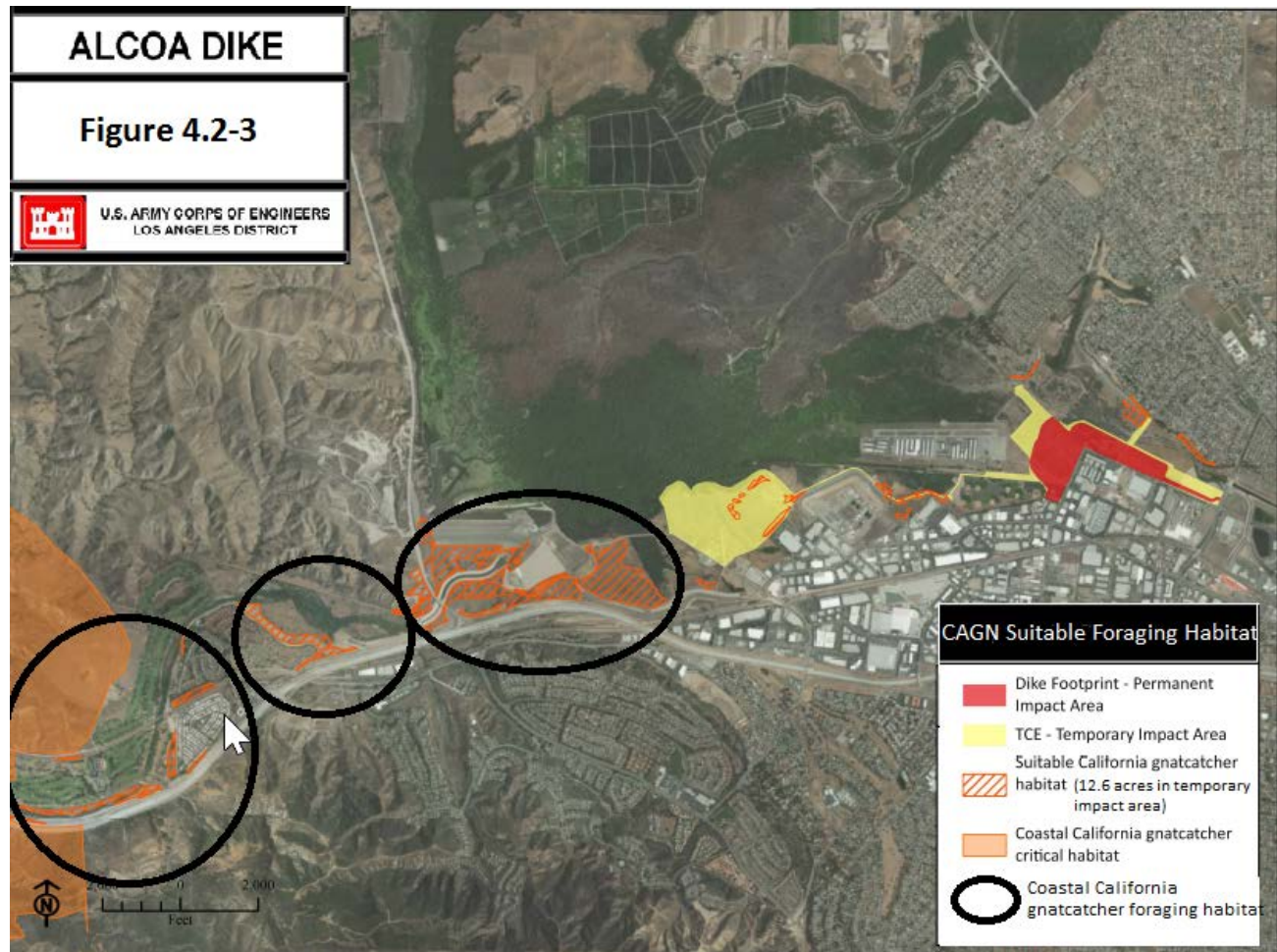
The 2001 SEIS/EIR, 2001 BO, and 2012 BO Amendment included a series of mitigation measures and environmental commitments that would be implemented to compensate for impacts to vegetation communities during construction of Santa Ana River Project features. These include measures to mitigate for temporary and permanent effects to aquatic, riparian, and upland habitats. For Prado Basin projects, many of the anticipated permanent impacts had previously been mitigated following requirements in the 1988 GDM/SEIS and the 1989 BO. However, since impacts to riparian and wetland habitats at the Alcoa Dike project area would exceed those that were anticipated in 1988, the Corps will compensate for temporary and permanent impacts to these habitat types following the precepts in the 2001 SEIS/EIR and 2012 BO (as amended). This will involve removing *Arundo donax* and other non-native vegetation from

areas in the mid- to upper watershed (primarily in the upper limits of Prado Basin) and restoring native habitat in those areas. This mitigation approach has been successfully applied for many other Santa Ana River Project features, and has resulted in hundreds of acres of fully restored habitat that far exceeds the impact acreage.

In compliance with the 2012 BO Amendment, the Corps will restore (through arundo and other non-native removal) one acre of riverine habitat for each acre of wetland/riparian habitat temporarily disturbed by the Alcoa Dike Project, and restore five acres for each acre of permanent impact to these vegetation communities. This will equate to 53.7 acres of off-site restoration, to compensate for temporary and permanent impacts to 32.5 acres of degraded wetland and riparian habitat types. *(The 1:1 mitigation requirement for temporary impacts assumes that the restored area will be actively maintained for the life of the project. The Corps also has the option of compensating for temporary impacts to riparian/wetland habitat by restoring three acres in an off-site location for each acre affected (3:1), and maintaining the restored area for a period of five years only. If the Corps selects this option, then 108.1 acres of habitat will be restored.)*

Due to the recently documented presence of gnatcatcher within the borrow site, the Corps will also mitigate for the temporary loss of 12.6 acres of coastal sage scrub vegetation by restoring this same amount of habitat within an area adjacent to the borrow site, outside of the project limits. This acreage will be managed for eight (8) years post-construction while the borrow site is being restored. In addition, previously restored or existing suitable coastal sage scrub/gnatcatcher habitat occurs within the general vicinity of proposed borrow area, providing additional area for any displaced birds to forage and nest (depicted in Figure 4.2-3). Prior restoration efforts within these areas has resulted in a large increase of native coastal sage scrub vegetation in the general Prado Embankment vicinity, and they have a larger percent cover of native vs. non-native habitats compared to adjacent fields that had not been disturbed during previous Prado Dam or Dike construction.

In addition, the Corps will restore temporarily impacted upland and riparian areas with native habitat as per EC-BR-14A, which requires hydroseeding with local native shrubs and ground cover species in areas disturbed by project activities



Noxious and Invasive Plants

Typically, in areas where few exotic species occur, the characteristics of the existing topsoil structure, cryptogamic crusts, or the existing native vegetation prevent weed seeds from germinating. Once soil disturbance has occurred, the soil structure or native biotic components are affected in a way that these factors no longer preclude the establishment of noxious or invasive weeds. Following establishment, new populations of weeds are often extremely difficult to eradicate. In riparian areas where access to ground water is available, exotic plants such as arundo, tamarisk, or white sweet clover can quickly exclude many native plant species. Another important factor is the potential spread of exotic plant species to riparian corridors. Many plant species utilized in landscaping (i.e., the gum, pepper, and black locust present in the project area) can be invasive and spread to adjacent wildlands. Noxious weeds can create such an unfavorable environment for wildlife that associate, mutualistic species necessary for native plant life cycles, such as seed dispersers, fossorial mammals, or pollinators, are lost from the area.

The proposed project area is already heavily infested with non-native vegetation including highly invasive species such as non-native grasses and tamarisk. However, direct impacts associated with the Proposed Action may include the introduction or establishment of additional weed species, or further spread of existing weeds. Weeds can be introduced by construction equipment or become established on disturbed areas. These invasive plant species can cause a permanent or long-lasting change to the environment by increasing vegetative cover, creating a dense layer that prevents native vegetation from germinating,

altering the edaphic and hydrological conditions through nitrogen fixation (as with Spanish broom [*Spartium junceum*]), or may reduce the water table as has been documented with species such as tamarisk and arundo. Indirect impacts attributed to the colonization of noxious weeds could include a gradual decrease in natural biodiversity as noxious weed infestations may extirpate native plant or animal populations.

To reduce the effects of introducing additional exotic weeds on natural plant communities, the Corps would implement mitigation measures provided in the 2001 SEIS/EIR along with additional environmental commitments prepared as part of this document. These include BR-14A, which requires hydroseeding with local native shrubs and ground cover species in areas disturbed by project activities; EC-BR-1, which requires the delineation of work areas prior to disturbance; EC-BR-4, which requires worker/environmental training; and EC-BR-6, which ensures compliance with all mitigation measures and environmental commitments during construction activities. These measures would reduce the effects of the Proposed Action by reducing the potential spread and colonization of weedy species and by restoring native plant communities at the conclusion of construction. A full list of mitigation measures and environmental commitments can be found in Chapter 6 of this document. Implementation of identified mitigation measures and environmental commitments would reduce impacts to less-than-significant levels.

Special-Status Plant Species

Federally or State listed as threatened or endangered plants were not identified in the 2001 SEIS/EIR or during surveys conducted. Based on existing habitat conditions at the site, federal or State listed as threatened or endangered plants are also not expected to occur on the project site. Although not detected during the surveys there is a potential for eight MSHCP covered or CRPR ranked species to occur on the project site. These include spreading navarretia, Brand's phacelia, white rabbit tobacco, Coulter's Matilija poppy, Robinson's pepper-grass, southern California black walnut, paniculate tarplant, and Chaparral verben. However, many of the Project areas support disturbed habitat which can have a reduced potential to support some rare plants.

If present, implementation of the Proposed Action could result in both direct and indirect effects to special-status plant species. Direct impacts to special-status plants could occur as a result of the removal of vegetation or trampling during construction activities.

Indirect impacts to special-status plant species, if present, could occur from the accumulation of fugitive dust related to project construction, the introduction and proliferation of non-native invasive plants, increased soil compaction, erosion, or sedimentation. Because noxious weeds can permanently degrade rare plant and animal habitats, their proliferation as a result of project activities could adversely affect special-status plant species if they are present. Excessive dust can decrease or limit plant survivorship by decreasing photosynthetic output, reducing transpiration, and adversely affecting reproductive success. Soil compaction, erosion, and sedimentation resulting from project activities can also indirectly impact rare plants, if present.

Project related impacts to special-status plant species have previously been analyzed in the 2001 SEIS/EIR. The 2001 SEIS/EIR included a series of mitigation measures that would be implemented as part of the Proposed Action to compensate for impacts to special-status plants, should they occur. Construction-related mitigation measures from the 2001 SEIS/EIR and additional commitments developed for this document will be implemented to reduce impacts to special-status plants, if present. These include EC-AQ-14, which requires the implementation of techniques to control fugitive dust; and EC-WR-1, which requires erosion control measures; EC-BR-3, which requires pre-construction surveys

and relocation of special-status (non-listed) species occurring in the project area; and EC-BR-4, which requires worker//environmental training. A full list of mitigation measures and environmental commitments can be found in Chapter 6 of this document. Adherence to identified mitigation measures and environmental commitments would reduce impacts to special-status plants, if present, to less than significant levels.

Jurisdictional Habitats

Potential impacts to jurisdictional resources were assessed in the 1988 and 2001 SEIS/EIR's. However, the specific acreages that would be subject to direct and indirect effects were not identified at that time, to the current level of detail. Based on updated mapping, implementation of the Proposed Action would result in approximately 0.5 acres of permanent impacts to Waters of the U.S. (federal waters), 0.01 acres of permanent impacts to jurisdictional wetlands and 7.3 acres of permanent impacts to Waters of the State. ("Wetlands" are a subset of jurisdictional Waters of the U.S. and the State. Generally, wetlands are lands where saturation with water is the dominant factor determining the nature of soil development and the types of plant and animal communities living in the soil and on its surface.) Additionally, construction of the Proposed Action would result in approximately 2.4 acres of temporary impacts to Waters of the U.S. 0.02 acres of temporary impacts to federal wetlands and 18.0 acres of temporary impacts to Waters of the State. Table 4.2-2 provides a description of the jurisdictional acreages subject to temporary and permanent impacts for the Proposed Action.

The current project footprint does not encroach any further into the floodplain or potential jurisdictional Waters of the U.S. or Waters of the State compared to that analyzed in the 2001 SEIS/EIR.

Direct effects would include the loss of habitat from construction of the proposed project. Indirect impacts to jurisdictional habitats could include alterations in existing topography, disruptions to native seed banks from ground disturbance, and the colonization of non-native, invasive plant species.

Although specific acreages of jurisdictional habitats were not identified in the 1988 GDM/SEIS and 2001 Final SEIS/EIR within the Alcoa Dike construction footprint, these documents assessed and included mitigation for potential impacts to riparian vegetation, which is primarily within the waters of the U.S. This SEA/EIR Addendum provides an updated accounting and description of impacts on and mitigation for riparian and wetland areas.

Both the 2001 SEIS/EIR and the 404(b)(1) analysis assume that all riparian and wetlands affected by the project, including unvegetated areas, are jurisdictional waters pursuant to the Clean Water Act (Waters of the United States). The Proposed Project remains in compliance with the guidelines in 40 CFR 230.10(c), promulgated by USEPA under Section 404(b)(1) of the CWA Guidelines. Information on the Proposed Project's compliance, including a 404(b)(1) evaluation (see Appendix C), and a waiver of 401 Certification pursuant to the Corps CWA implementing regulations (33 CFR 336.1[a][1]) may be found in the 2001 Final SEIS/EIR.

Table 4.2-2 Total Impacted Acreage of Jurisdictional Wetlands/Waters

Federal, State Jurisdictional Habitat (Joint Jurisdiction)			
Impact Type	Total Potential Jurisdictional Waters in Acres		Total Potential Jurisdictional Wetlands in Acres
	State	Federal	Federal
Permanent	7.3	0.5	0.01
Temporary	18.0	2.4	0.02
Total Acres	25.3	2.9	0.03

To reduce effects of the Proposed Action on jurisdictional waters, the Corps would implement mitigation measure BR-14A which requires the restoration of disturbed areas at the completion of construction. As described above, many of the existing vegetation communities have been colonized by invasive weeds. Restoration of these areas would include the enhancement/restoration of native upland and riparian plant communities. The Corps' construction contractor will also comply with mitigation measure EC-WR-4, which requires development and implementation of a Stormwater Pollution Prevention Plan. Adherence to identified environmental commitments would reduce impacts to less than significant levels.

4.2.2.2 Wildlife

The SAR, Prado Basin, its tributaries, and surrounding plant communities support a variety of both common and special-status wildlife species. As the Proposed Action would occur in both riparian and upland areas, the Proposed Action could affect species that rely on these habitats for all or significant portions of their life history. For example, many semi-aquatic species (i.e., pond turtles, two-striped garter snakes, and amphibians) rely on these areas for completion of their life cycles and for refugia during flood events. Burke and Gibbons (1995) found that nesting and terrestrial hibernation, both necessary stages of freshwater turtle life cycles, occurred exclusively outside of riparian borders delineated by federal protection.

Nesting Birds

The Proposed Action has the potential to result in direct and indirect effects to nesting birds. With the exception of a few non-native birds such as the European starling, active nests are fully protected against take pursuant to the Migratory Bird Treaty Act (MBTA) and relevant CDFW Codes. Direct impacts to nesting birds could occur if construction activities disrupt habitat utilized for nesting or construction activity results in abandonment or destruction of the nest. Construction noise, dust, and general human presence and activity could also disturb or harass breeding birds or result in nest failure or abandonment. .

Indirect impacts may include increased human presence and the loss of habitat through the colonization of noxious weeds.

Project related impacts to nesting birds have previously been analyzed in the 2001 SEIS/EIR. The 2001 SEIS/EIR and the 2012 BO Amendment included a series of mitigation measures that would be implemented as part of the Proposed Action to compensate for impacts to nesting birds, should they occur. Construction-related mitigation measures from the 2001 SEIS/EIR, the 2012 BO Amendment and additional commitments developed for this document will be implemented to reduce impacts to nesting birds should they occur in the project area. These include measures to offset the permanent loss and temporary disturbance of habitat, such as BR-14A, which requires the restoration and maintenance of temporarily disturbed areas to native habitat following project construction activities; EC-BR-7, which requires offsite mitigation (through arundo and other non-native removal) for each acre of wetland/riparian habitat temporarily or permanently disturbed; BR-12, which requires monitoring to ensure that vegetation is removed only from within designated areas; BR-13 and BR-14, which require installation of sound barriers around construction areas to minimize noise and visual impacts to sensitive species; and EC-BR-8, which requires a qualified individual to conduct noise monitoring during construction activities to minimize noise impacts to sensitive species, including least Bell's vireo. Additional measures would be implemented to minimize and/or avoid impacts to wildlife associated with mortality due to vehicular or mechanical crushing, exposure to fugitive dust, the spread and colonization of invasive weeds, and increased human presence. These include BR-11 and BR-14C, which require vegetation clearing to be conducted outside of the nesting season; EC-BR-3, which requires pre-

construction surveys and relocation of special-status (non-listed) species occurring in the project area; EC-AQ-14, which requires the implementation of techniques to control fugitive dust; EC-BR-4, which requires worker/environmental training; and, EC-BR-6, which ensures compliance with all mitigation measures and environmental commitments during construction activities. A full list of mitigation measures and environmental commitments can be found in Chapter 6 of this document. Implementation of these mitigation measures and environmental commitments will result in less than significant impacts to wildlife.

Federally/State Listed and California Fully Protected Species

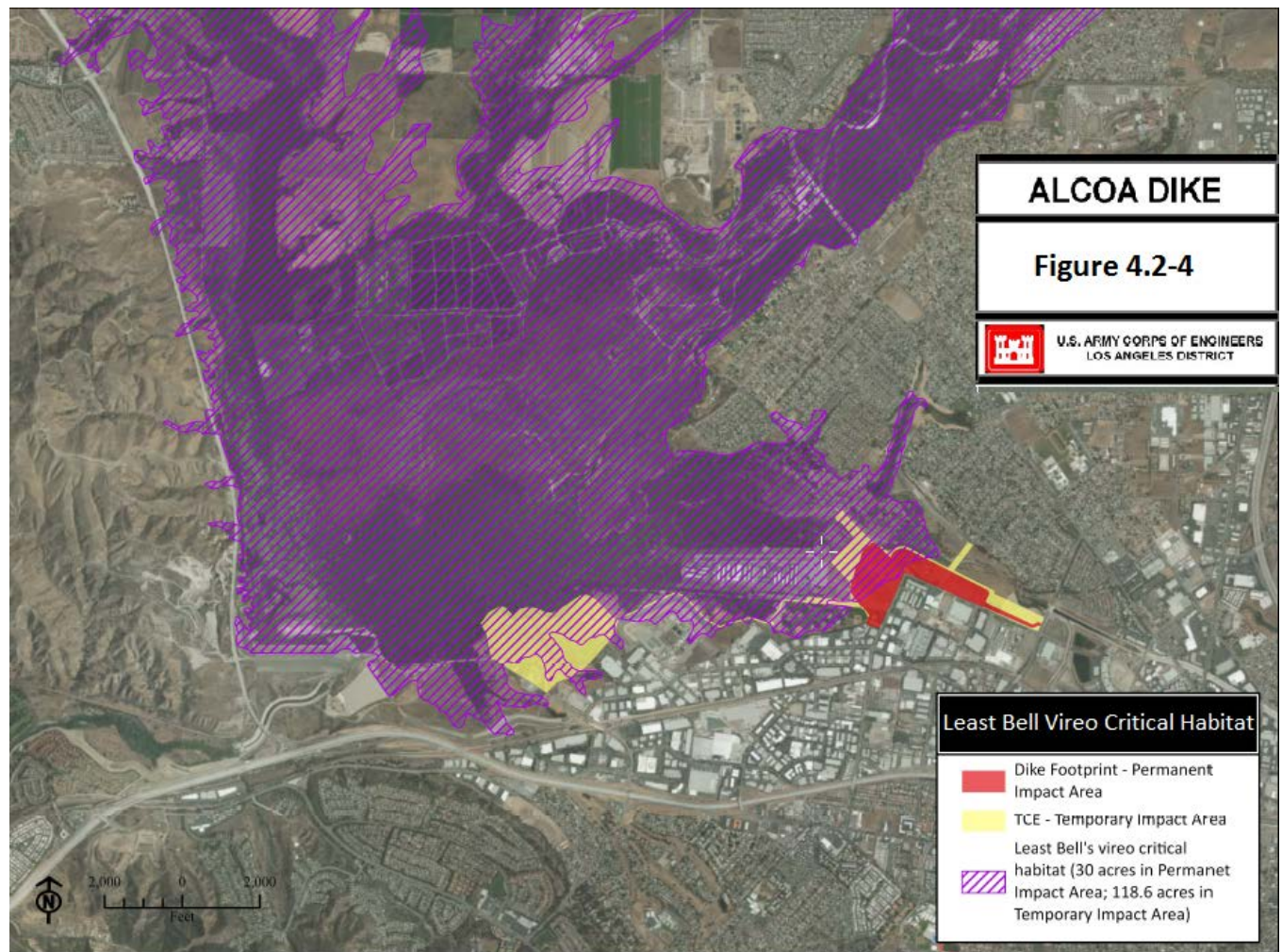
Habitat within or in the vicinity of the proposed project area has the potential to support several Federally-listed and State-protected wildlife species, and there is designated critical habitat for some of these species within the project footprint. Federally-listed species or their critical habitat that may be affected include least Bell's vireo (nesting territories and designated critical habitat), California gnatcatcher (known foraging habitat), and yellow-billed cuckoo (minor overlap onto designated critical habitat). Other federally-listed species and, or their designated critical habitat that could potentially occur in the vicinity but are not expected to be affected include southwestern willow flycatcher and the Santa Ana sucker. A State fully-protected species, the white-tailed kite, is regularly observed in the vicinity of the borrow site. In addition, several large raptors including Swainson's hawk, bald eagle, and golden eagle have the potential to occur in the project area. Potential effects to these species have previously been analyzed in the 2001 SEIS/EIR and the Biological Opinions prepared for the SARM Project. The following provides an updated analysis of effects that may occur from the currently proposed Alcoa Dike project.

Least Bell's Vireo (LBV)

SAWA reported a total of 549 vireo territories within the Prado Basin in 2017 (Bonnie Johnson, 2017 as cited in SAWA, 2017). An additional 1,208 territories were documented beyond the Prado Basin within the Santa Ana River watershed (SAWA, 2017). Of these, 2 territories were identified in the project area and an additional 7 were identified within 200 feet of the project area. As documented in the 2001 SEIS/EIR, it was anticipated that implementation of the Proposed Project would impact 5.8 acres of native riparian habitat, including the dike, haul road, and borrow site. Based on the most current design and updated mapping, impacts to least Bell's vireo habitat would include the permanent removal of 5.3 acres and temporary disturbance to 27.2 acres of suitable and occupied habitat (riparian scrub).

In addition, as shown in Figure 4.2-4, the proposed project would permanently affect 30.0 acres and temporarily affect 118.6 acres of designated critical habitat area for this species. (38,000 acres of critical habitat has been designated in southern California.) Of the 30.0 acres of permanent impact, 5.3 acres is riparian vegetation (suitable nesting/foraging habitat). Of the 118.6 acres of temporary impact, 27.2 acres is riparian vegetation. The remaining affected area is developed/landscaped and, or non-native habitat. With the implementation of Mitigation Measure EC-BR-7, which requires offsite mitigation (through arundo and other non-native removal) for each acre of riparian habitat temporarily or permanently disturbed, and Environmental Commitment BR- 14A which requires the restoration and maintenance of temporarily disturbed areas to native habitat during project construction activities, adverse effects to the species and to critical habitat will be minimized.

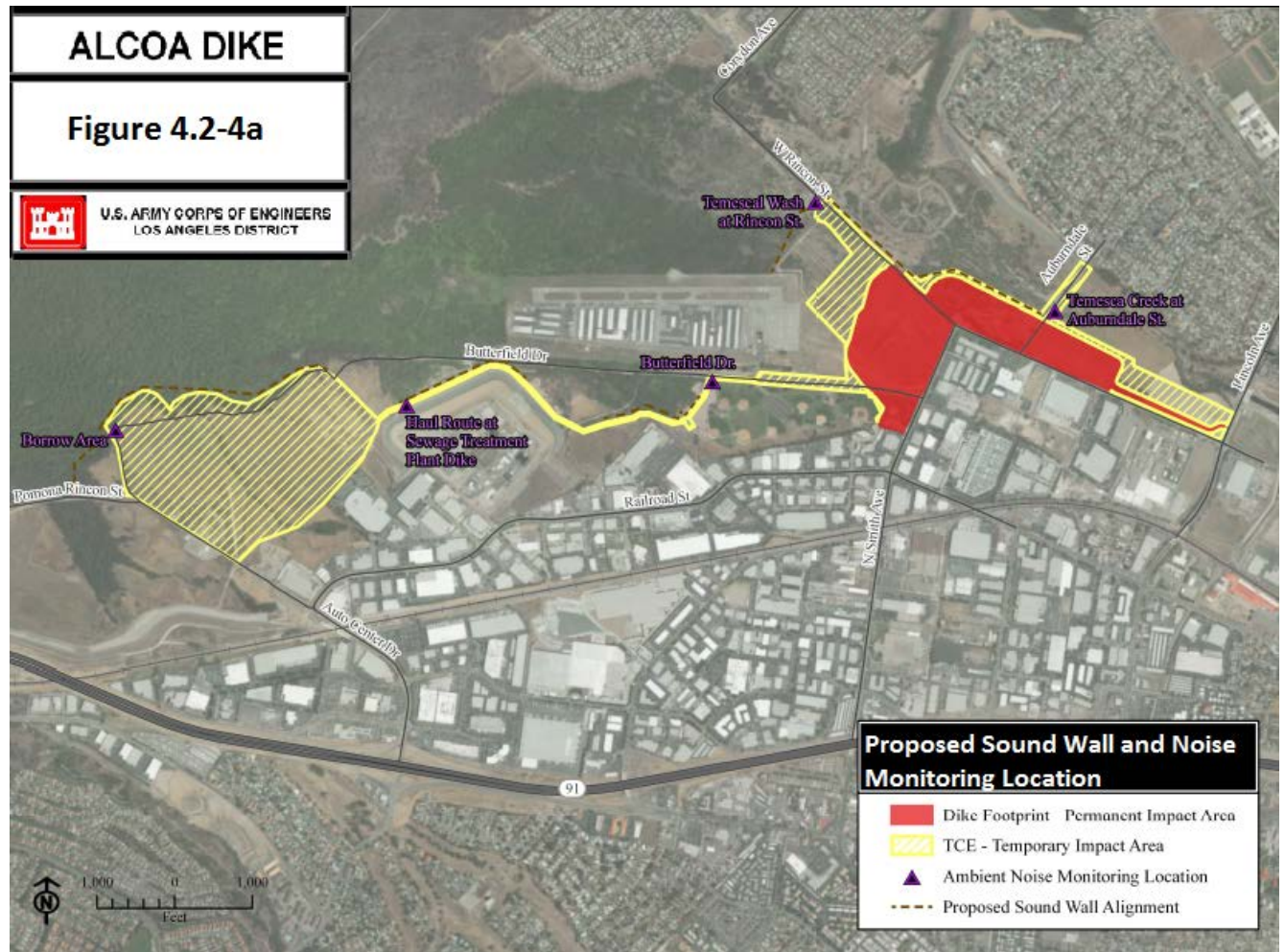
As shown in Figure 4.2-4b, construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. In the absence of specific measures to abate noise and fugitive dust during construction, as many as seven (7) vireo pairs that nested within 200 feet of the project area could be adversely affected, in addition to the two (2) pairs



within the project footprint, but potential indirect impacts are expected to be somewhat reduced due to the visual and noise buffering provided by undisturbed habitat and by implementing BR-13 and BR-14, which require installation of sound barriers around construction areas to minimize noise and visual impacts to sensitive species. In addition, EC-BR-8 will be implemented, which requires a qualified individual to conduct noise monitoring during construction activities to minimize noise impacts to sensitive species, including least Bell's vireo. Birds use their sense of hearing to locate their young and mates, to establish and defend territories, and to locate and evade predators (Scherzinger, 1970).

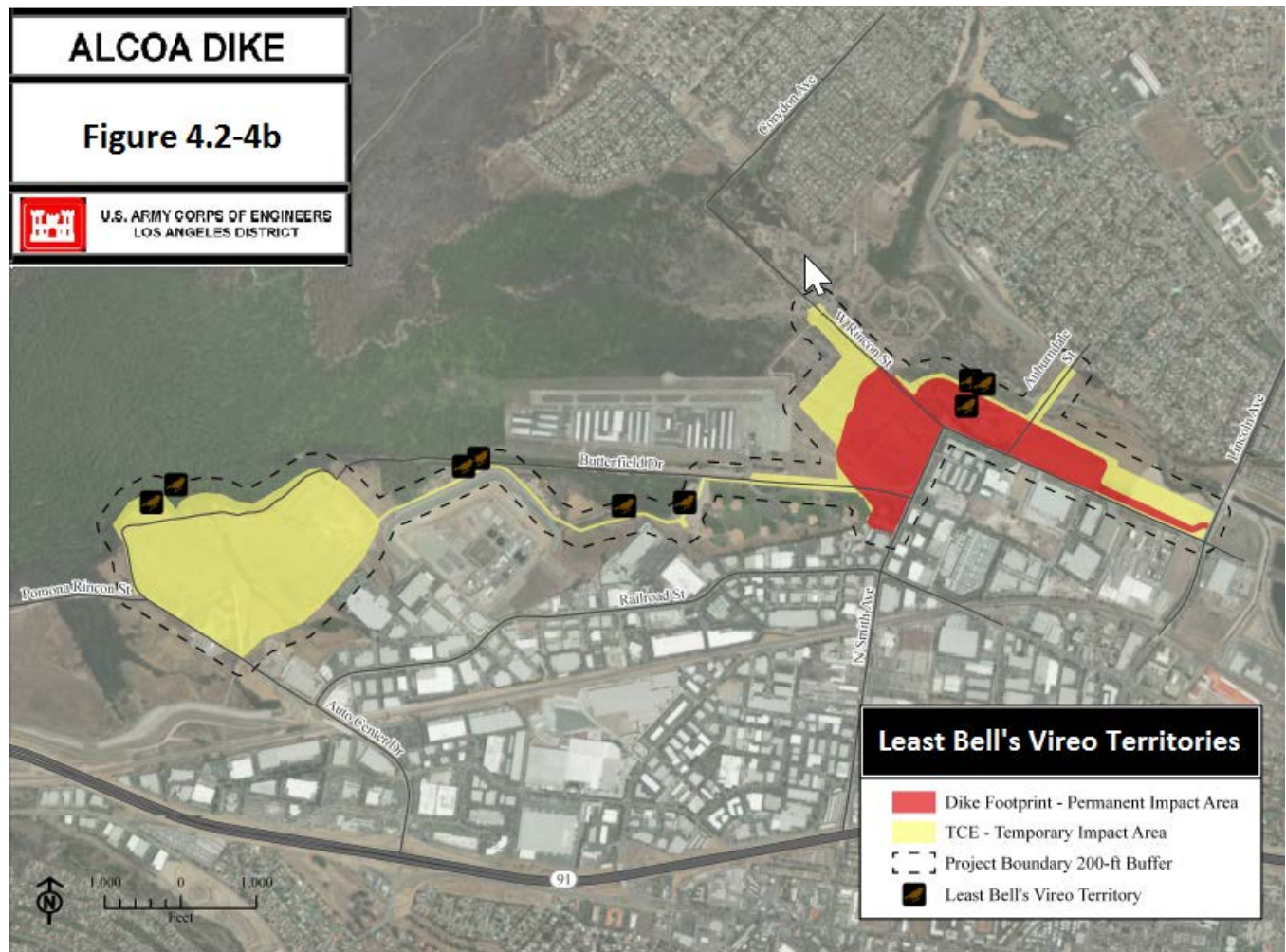
Based on observations of vireos that nested successfully within and adjacent to other construction projects in the vicinity (including the Corps' Sewage Treatment Plant dike, Prado Embankment and various Reach 9 projects), it is anticipated that most of the nesting locations outside of the direct project footprint will continue to support vireos during and after construction. As mentioned above, sound levels will be monitored and sound walls or other barricades will be constructed to reduce indirect impacts to birds outside of the construction area.

Assuming that vireos beyond 200 feet of the construction footprint will be able to continue nesting successfully, this project is anticipated to displace or affect up to nine (9) vireo territories (7 within 200 feet and 2 within the project footprint).



Project related impacts to least Bell's vireo have previously been analyzed in the 2001 SEIS/EIR, 2001 BO, and 2012 BO Amendment. These documents included a series of mitigation measures that would be implemented as part of the Proposed Action to minimize impacts to least Bell's vireo and other sensitive species. EC-BR-7, BR-14A, BR-13 and EC-BR-8 have already been mentioned in this section. Other measures include BR-11 and BR-14C, which require vegetation clearing or mowing to be conducted outside of the nesting season.

According to the 2001 SEIS/EIR, 2001 BO, and 2012 BO Amendment a number of substantive measures would be implemented to minimize potential noise and vibration effects to least Bell's vireo as a result of project construction activities. As stated in the 2001 BO, and 2012 BO Amendment these measures were intended to ensure that: (1) noise does not exceed 60 dBA within occupied vireo habitat; or, (2) noise does not exceed 5 dBA above ambient conditions if said levels are above 60 dBA. In order to comply with noise requirements addressed in the BO Amendments, mitigation measure BR-13 and BR-14, which require the installation of noise barriers between construction areas and riparian habitat where necessary and feasible. Barriers may not be installed if it is determined that the additional footprint required would result in a greater impact to adjacent nesting territories than the construction noise itself (noise monitoring locations are shown in Figure 4.2-4a. Additional mitigation measures from the 2001 SEIS/EIR, 2001 BO and 2012 BO Amendments and environmental commitments developed for this document that would be



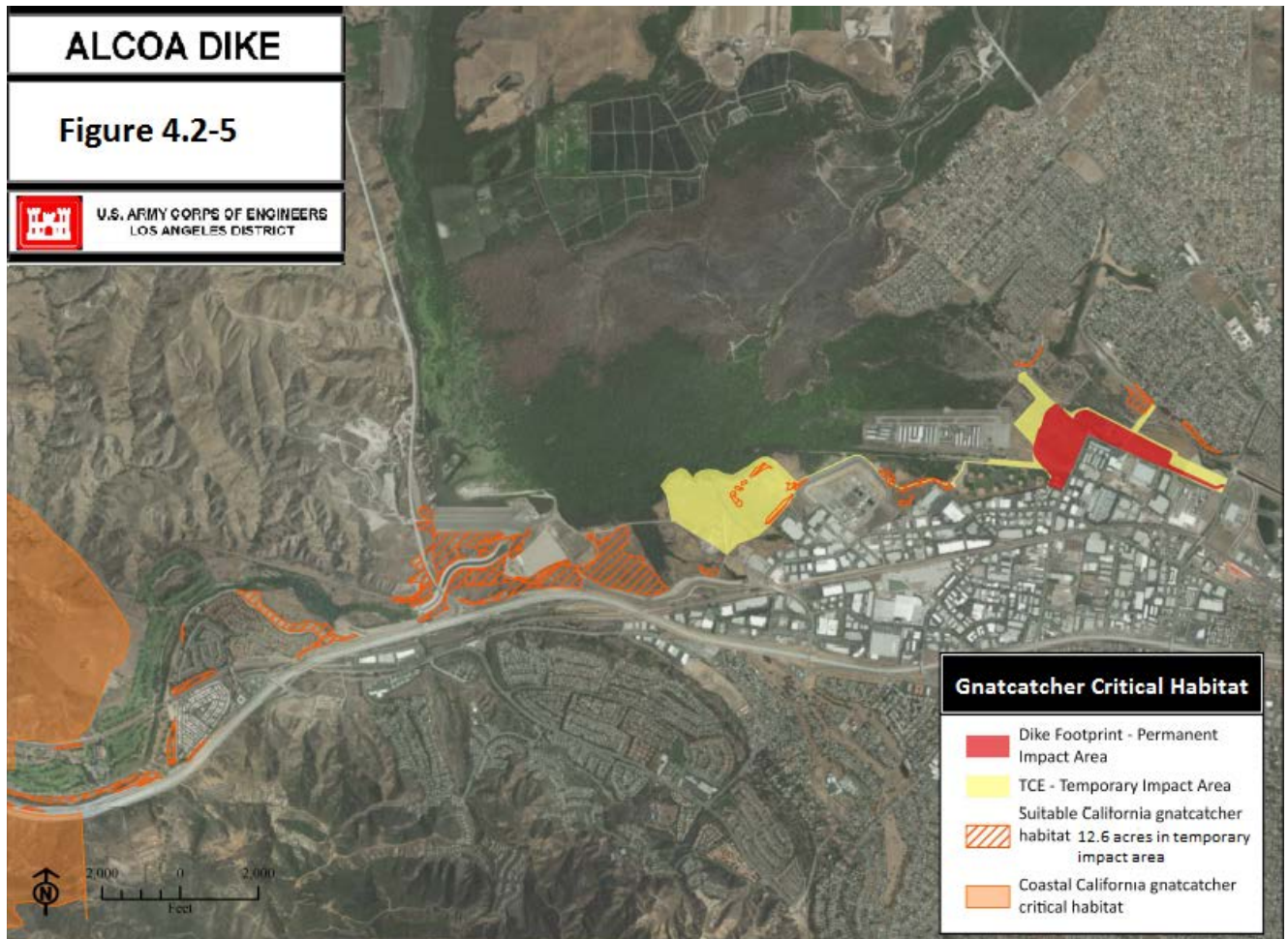
implemented to further avoid and/or minimize impacts to least Bell's vireo include EC-AQ-14, which requires the implementation of techniques to control fugitive dust; EC-BR-4, which requires worker/environmental training; and, EC-BR-6, which ensures compliance with all mitigation measures and environmental commitments during construction activities. A full list of mitigation measures and environmental commitments can be found in Chapter 6 of this document.

Conclusion:

The proposed project may affect least Bell's vireo and its critical habitat. With the implementation of avoidance and minimization measures described herein, the effects would be less than significant.

Coastal California Gnatcatcher (CAGN)

This bird is found in coastal sage scrub habitats and local variants and occasionally forages in other, usually adjacent, habitats. This is especially true of juveniles in late summer. Coastal California gnatcatchers have been recorded in the immediate vicinity of the site and within the project footprint and are known to occur in both the Chino Hills and Santa Ana Mountains. Prior to about 2015 the nearest known population to the Prado Basin was near Gypsum Canyon, about 1.8 km (1.1 mi) west of the project area. Several recent observations throughout Reach 9 and the Prado Basin, including the project borrow



area (SAWA 2017) indicate that California gnatcatcher have been expanding their range in the last three years as shown in figure 4.2-5 . They are now likely to nest in or adjacent to the project area.

The project will result in the temporary loss of approximately 12.6 acres of restored coastal sage scrub habitat within the project footprint, within the borrow area as shown in figure 4.2-5. This is an area that had previously consisted of non-native grassland that had been removed for other SARMP dike construction and was in the process of being restored with native vegetation. Gnatcatchers have been observed in the project area during the site visits and general bird surveys that have occurred in the area over the last year and this year, as shown in Figure 4.2-5a. Due to the presence of suitable upland habitats within the project area, it has been determined that the proposed project would affect coastal California gnatcatcher.

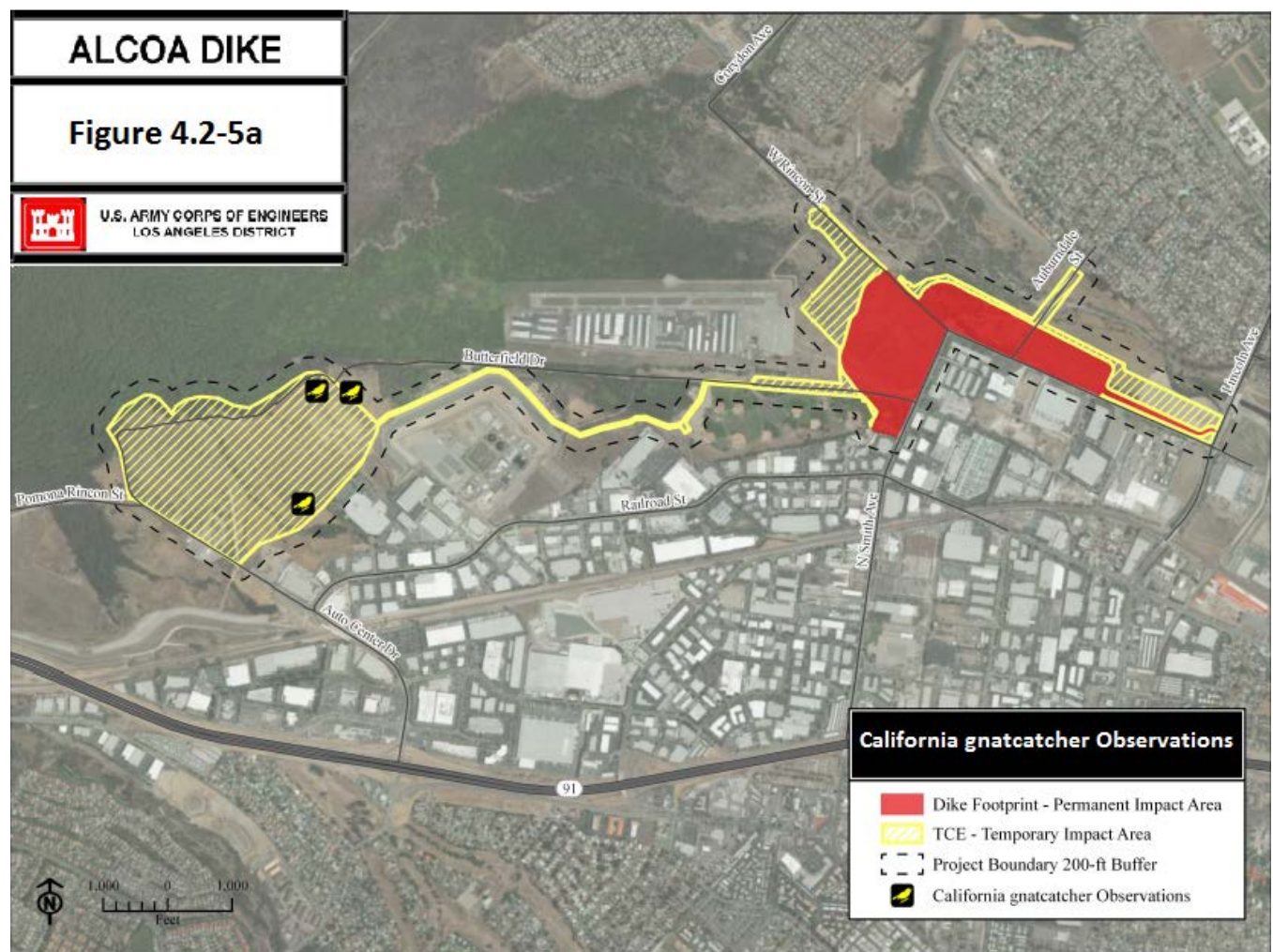
There are series of mitigation measures that would be implemented as part of the Proposed Action to minimize impacts to CAGN such as BR-14A, which requires the restoration and maintenance of temporarily disturbed areas to native habitat during project construction activities; BR-13 and BR-14, which require installation of sound barriers around construction areas to minimize noise and visual impacts to sensitive species; and EC-BR-8, which requires a qualified individual to conduct noise monitoring during construction activities to minimize noise impact to sensitive species. In addition to the preceding measures, several other measures would be implemented these include BR-11 and BR-14C, which require vegetation clearing to be conducted outside of the nesting season.

The Corps will also mitigate for the temporary loss of 12.6 acres of coastal sage scrub vegetation by restoring this same amount of habitat within an area adjacent to the borrow site, outside of the project limits. This acreage will be managed for eight (8) years post-construction while the borrow site is being restored. In addition, previously restored or existing suitable coastal sage scrub/gnatcatcher habitat occurs within the general vicinity of proposed borrow area, providing additional area for any displaced birds to forage and nest (depicted in Figure 4.2-3). Prior restoration efforts within these areas has resulted in a large increase of native coastal sage scrub vegetation in the general Prado Embankment vicinity, and they have a larger percent cover of native vs. non-native habitats compared to adjacent fields that had not been disturbed during previous Prado Dam or Dike construction.

Additional mitigation measures include EC-BR-4, which requires worker/environmental training; and EC-BR-6, which ensures compliance with all mitigation measures and environmental commitments during construction activities. A full list of mitigation measures and environmental commitments can be found in Chapter 6 of this document.

Conclusion:

The proposed project may affect the California gnatcatcher. With the implementation of avoidance and minimization measures described herein, the effects would be less than significant.



Yellow-billed Cuckoo

The yellow-billed cuckoo is a Federally listed threatened species. This species is also protected under the Western Riverside Multiple Species Habitat Conservation Plan (MSHCP). The yellow-billed cuckoo inhabits extensive riparian woodlands, especially those dominated by cottonwood and willow. It is a very rare and localized summer resident in California and only a few breeding stations for this species in the state are currently known.

Proposed critical habitat for the western distinct population segment of the cuckoo was published in the federal register on August 15, 2014 (79 FR 158). Critical habitat is currently proposed to encompass approximately 4,406 acres in Prado Basin and in the Santa Ana River upstream to just before Hamner Avenue, which is Critical Habitat Unit 6, or CA-6. Approximately 1,300 acres, or 30 percent, of this area is in Federal ownership managed by the Corps, and 3,106 acres, or 70 percent, of proposed unit CA-6 is owned and managed by the OCWD. Prado Basin is important to the conservation of the species because it is the largest remaining block of riparian habitat in this region into which a recovering cuckoo population can expand, and the only remaining site in southwestern California where the species has recently nested. The area also provides a movement corridor between larger habitat patches (Service 2014a). The proposed Prado Basin critical habitat unit is one of 80 critical habitat units proposed for the cuckoo, that total an area of approximately 546,335 acres located in 9 western states (Service 2014a).

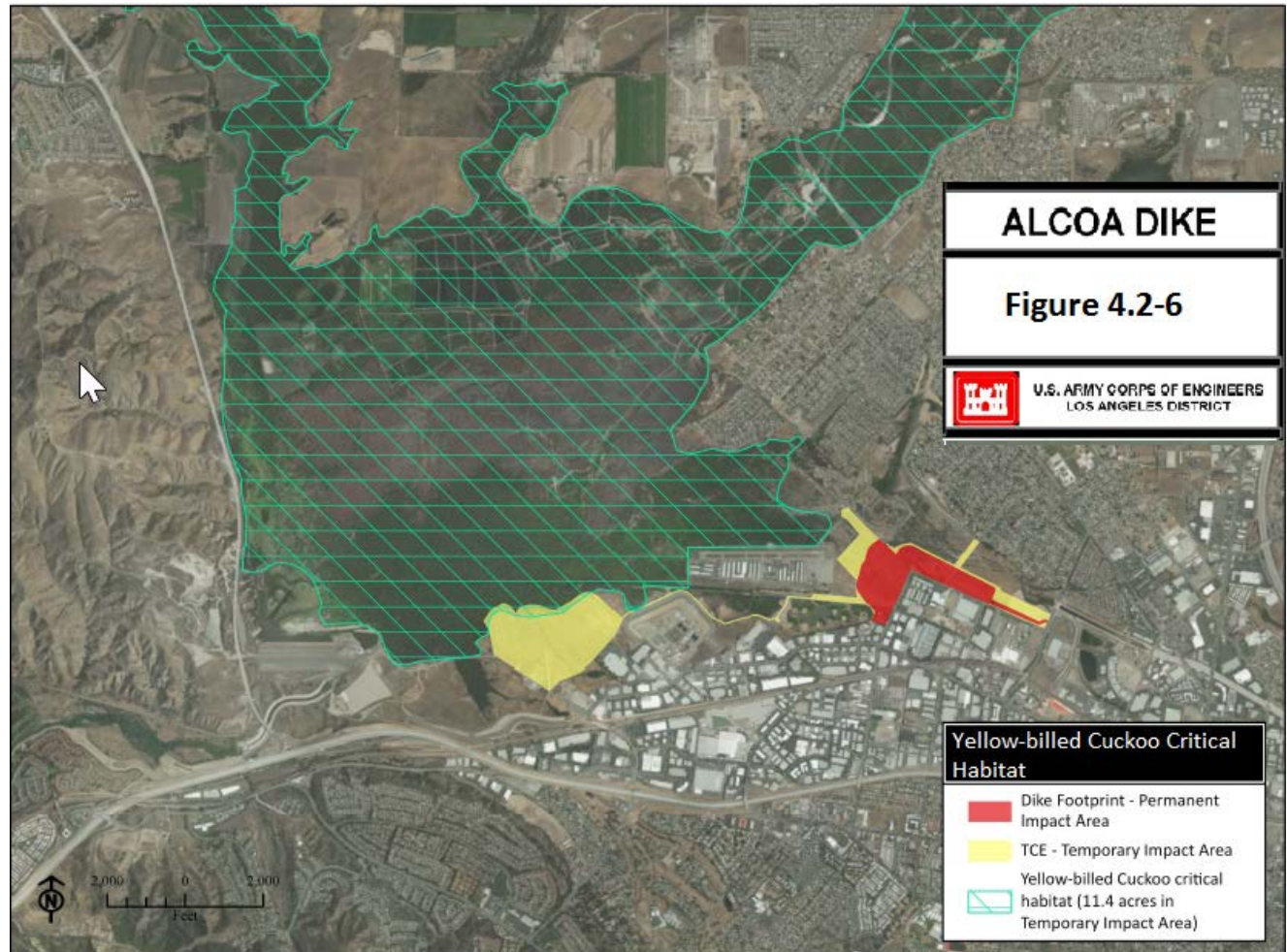
Prado Basin was occupied by cuckoo in the past. Prior to 1995, a small local population appeared to be somewhat stable, and three (Zembal et al. 1985) to seven (Hays 1987) birds were recorded annually. However, in 1995, a large proportion of Prado Basin was flooded and during the next seven years, just one or two cuckoos were detected per year (Pike et al. 2016). None were heard in Prado Basin between 2002 and 2010. The last cuckoo that was detected was found in the central Prado Basin in June of 2011 (Pike et al. 2016). No cuckoos have been observed within the Alcoa Dike project survey area; however, potential nesting habitat exists providing a low probability that this species may pass through or forage in the project area.

Southern willow scrub habitat is present within and adjacent to the footprint for the proposed Alcoa Dike. However, this area is not consistent with typical patch size required for this species and there are no known territories within the Alcoa Dike site. Therefore, the Proposed Project would have no direct effect on this species.

Implementation of the proposed project would temporarily effect 11.4 acres of the proposed designated critical habitat for this species, primarily along the northern edge of the borrow site as shown in Figure 4.2-6. With the implementation of Environmental Commitment BR- 14A which requires the restoration and maintenance of temporarily disturbed areas to native habitat during project construction activities, there would be no permanent loss of critical habitat.

Conclusion:

The proposed project may affect proposed critical habitat for the yellow-billed cuckoo, but is not expected to affect occupied or suitable nesting habitat for this species. With the implementation of avoidance and minimization measures described herein, the effects would be less than significant.



Southwestern Willow Flycatcher

Southwestern willow flycatcher was not identified in the proposed project area during recent site visits or during a series of nesting bird surveys conducted by the Orange County Water District (SAWA 2017) over the past several years. The number of recorded flycatchers within Prado Basin peaked at nine territories in 2003. Since then, there has been a steady decline in flycatcher presence, and no nesting pairs have been detected since 2013 (Pike et al. 2013). Due to the narrow breadth of the riparian corridor through the area and proximity to human development, the Alcoa Dike project area does not support suitable breeding habitat and no flycatcher home ranges have been reported from this area. Therefore, there is a low potential for this species to occur in the project area, and no effect to flycatcher is anticipated.

Project related impacts to southwestern willow flycatcher have previously been analyzed in the 2001 SEIS/EIR for the SARM Project. Although these documents concur that impacts to breeding southwestern willow flycatchers would not occur as a result of Proposed Action, a series of mitigation measures are provided to further ensure that impacts to this species are avoided, should this species occur in the project area. These include 14A, which requires the restoration and maintenance of temporarily disturbed areas to native habitat following project construction activities; EC-BR-7, which requires offsite mitigation (through arundo and other non-native removal) for each acre of riparian habitat temporarily or

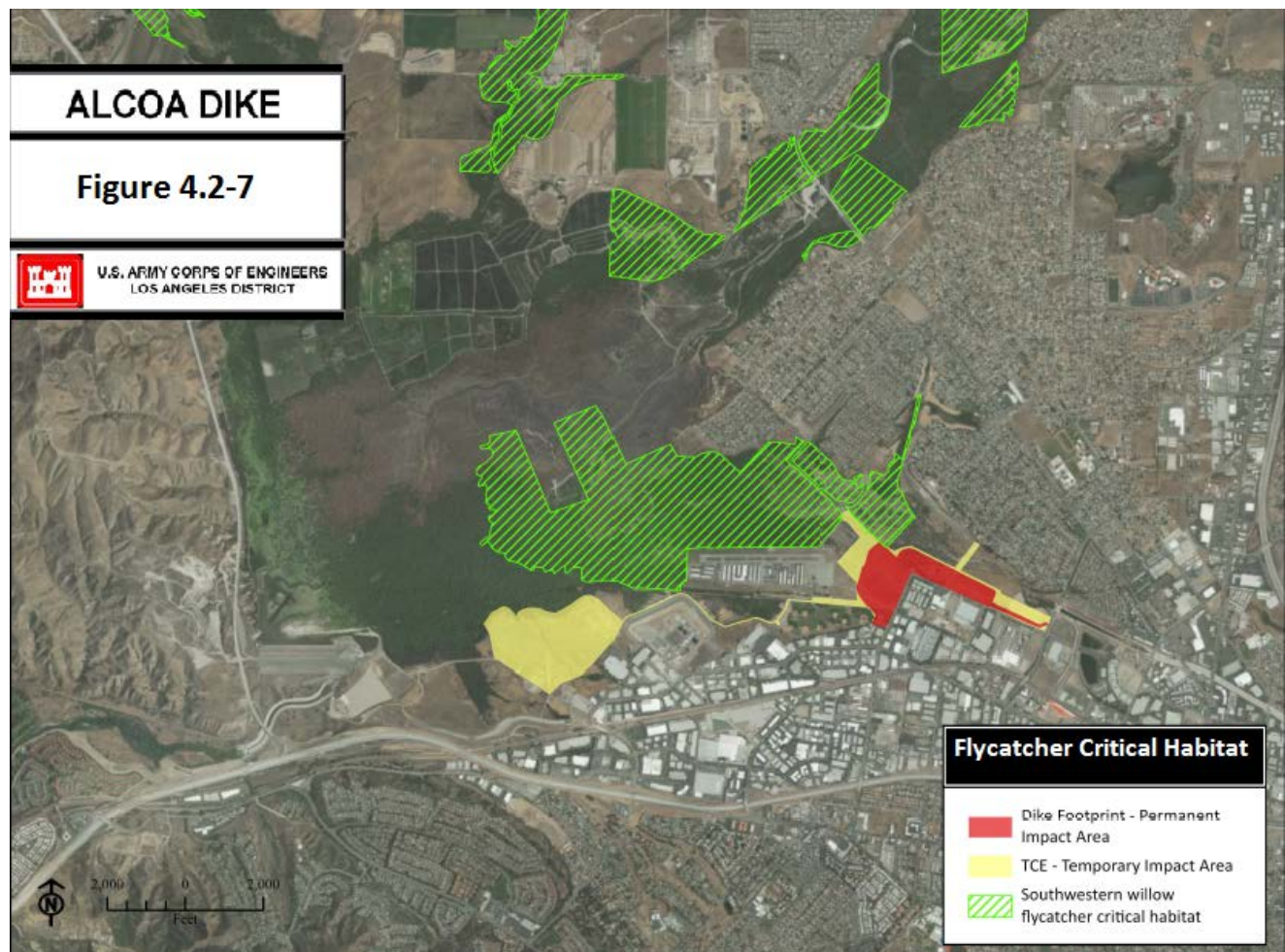
permanently disturbed; BR-12, which requires monitoring to ensure that vegetation is removed only from within designated areas; BR-13 and BR-14, which require installation of sound barriers around construction areas to minimize noise and visual impacts to sensitive species; EC-BR-8, which require a qualified individual to conduct noise monitoring during construction activities to minimize noise impacts to sensitive species; and BR-11 and BR-14C which require vegetation clearing to be conducted outside of the nesting season.

Additionally, mitigation measures and environmental commitments developed for this document would be implemented. These would include EC-BR-4, which requires worker/environmental training; and EC-BR-6, which ensures compliance with all mitigation measures, environmental commitments and construction monitoring during construction activities. A full list of mitigation measures and environmental commitments can be found in Chapter 6 of this document.

Designated critical habitat for the flycatcher is immediately adjacent to the Alcoa Dike project area, although no direct overlap is anticipated as shown on Figure 4.2-7.

Conclusion:

No effect to southwestern willow flycatcher or its critical habitat is anticipated.



Santa Ana Sucker

The Santa Ana sucker, a federally threatened and CDFW species of special concern, is known to occur in aquatic habitat within the Santa Ana River. Designated critical habitat for this species is not present in the project footprint, however it is present one mile to the northwest of the project area in the Santa Ana River. During periods of hydrologic connectivity between Temescal Wash and the Santa Ana River, when there is sufficient rainfall, it may be possible (although unlikely) for Santa Ana suckers to occur within the immediate project vicinity, although no effects to this species are anticipated. Construction of the Proposed Action would not result in the loss of aquatic habitat. The project design avoids all impacts to defined bed, bank and channel of Temescal Creek. Moreover, the construction contractor will be instructed to restrict all construction-related access to outside of the channel whenever water is present.

The portion of the Temescal Wash that runs along the project area lacks the primary constituent elements that have been recognized as essential critical habitat for prolonged sucker presence or spawning as shown in Figure 4.2-7. It is a highly degraded area with a large amount of non-native vegetation and trash, and is dry most of the year.

To minimize and avoid increased levels of sedimentation, turbidity and siltation, and exposure to accidental releases of contaminants downstream of Temescal Wash, mitigation measures will be implemented such as EC-WR-1, which requires erosion control measures; EC-WR-4, which requires development and implementation of a Stormwater Pollution Prevention Plan; and EC-WR-3, which would require the obtainment of a National Pollution Discharge Elimination Stormwater (NPDES) construction stormwater permit prior to construction. A full list of mitigation measures and environmental commitments can be found in Chapter 6 of this document.

Conclusion:

The proposed project activities would have no effect on Santa Ana Sucker or its designated critical habitat.

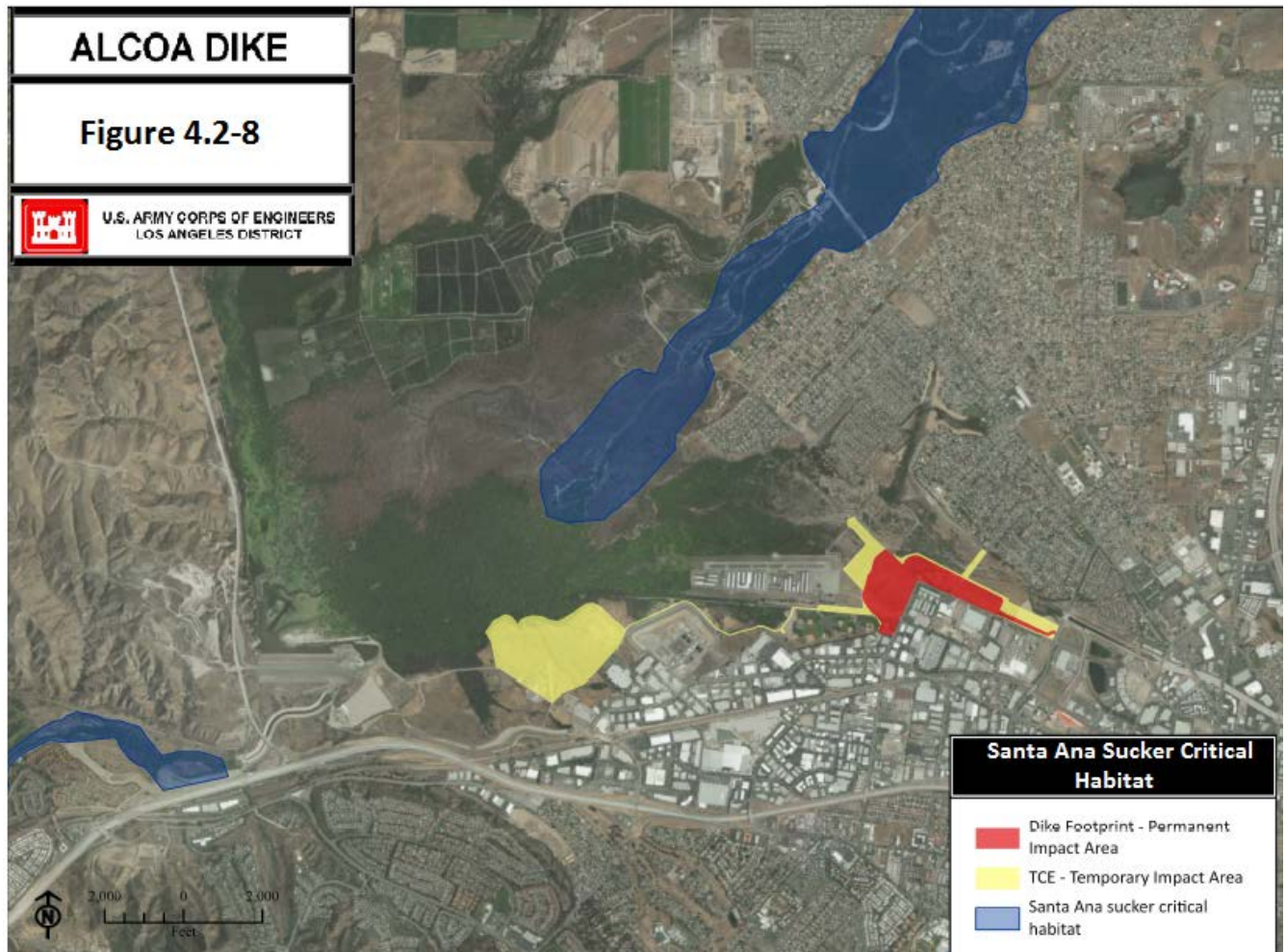
Vernal Pool Fairy Shrimp

This species is endemic to California and the Agate Desert of southern Oregon and is generally restricted to cool-water vernal pools and other non-vegetated ephemeral pools (USFWS, 2007).

There are no known records for this species in the project area or surrounding areas although the project area is located within the known geographic distribution for this species. No indication of vernal pools or other suitable ephemeral pool habitats were identified in the project area. Due to the lack of suitable habitat observed within the project area it has been determined that the proposed project would have no effect on the Vernal pool fairy shrimp.

Conclusion:

Direct and indirect effects to this species are not expected to occur. Therefore, the Proposed Action would have no effect on this species.



Riverside Fairy Shrimp

This species is historically known from Riverside, Orange, and San Diego Counties in southern California and northwestern Baja California, Mexico but has also been documented in Ventura County and is generally restricted to vernal pools and other non-vegetated ephemeral pools (USFWS, 2008).

There are no known records for this species in the project area or surrounding areas although the project area is located within the known geographic distribution for this species. No indication of vernal pools or other suitable ephemeral pools were identified in the project area.

Conclusion:

Due to the lack of suitable habitat observed within the project area it has been determined that the Proposed Action would have no effect on this species.

Golden Eagle, Swainson's Hawk, Bald Eagle, and White-Tailed Kite

Although none of these species were identified in the project area during surveys, each are known to occur in the region of the proposed project area. The proposed project area does not support suitable nesting habitat for golden or bald eagle; however, the golden eagle has been historically documented

nesting in the Chino Hills, adjacent to the project area. Suitable nesting habitat for bald eagles is not present within the project area although limited foraging opportunities are available. The proposed project area supports suitable nesting habitat for white-tailed kite and breeding is strongly suspected in suitable habitat throughout the region; however, this species was not documented in the project area during surveys. Swainson's hawk does not breed in the proposed project area but likely occurs as a periodic migrant. Suitable foraging habitat for each of these species occurs in the project area.

Direct, indirect, and operational impacts to these species would be the same as described for nesting birds. If white-tailed kite is breeding in the project area, loss of breeding habitat due to construction activities could result in reduced reproductive success and increased mortality. The removal of existing vegetation and topsoil within work areas would likely result in the loss of small terrestrial wildlife populations (i.e., moles, voles, small mice and gophers), which serve as important food resources for raptors. Subsequently, the birds may be required to expend additional time and energy foraging farther from the nest. This can adversely affect nest success and expose nestlings to predation by crows and other birds.

Project related impacts to raptors have previously been analyzed in the 2001 SEIS/EIR. The 2001 SEIS/EIR identifies no significant impacts to these species because the amount of habitat that would be disturbed as a result of implementation of the proposed project would be small in comparison to the amount of suitable habitat available to these species throughout the region. To further ensure that impacts to golden eagle, Swainson's hawk, and white-tailed kite are minimized and/or avoided, a series of mitigation measures provided in the 2001 SEIS/EIR and environmental commitments developed for this document would be implemented. These include measures, such as BR-14A, which requires the restoration and maintenance of temporarily disturbed areas to native habitat following project construction activities; BR-13 and BR-14, which require installation of sound barriers around construction areas to minimize noise and visual impacts to sensitive species; and EC-BR-8, which requires a qualified individual to conduct noise monitoring during construction activities to minimize noise impacts to sensitive species. In addition to the preceding measures, several other measures would be implemented to protect nesting birds, including, EC-BR-3, which requires a pre-construction surveys of the project site; BR-11 and BR-14C, which require vegetation clearing to be conducted outside of the nesting season; EC-BR-4, which requires worker/environmental training; and EC-BR-6, which ensures compliance with all mitigation measures, environmental commitments and construction monitoring during construction activities. A full list of mitigation measures and environmental commitments can be found in Chapter 6 of this document.

Conclusion:

Implementation of these mitigation measures and environmental commitments will result in less than significant impacts to golden eagle, Swainson's hawk, and white-tailed kite, should they occur in the project area.

California Species of Special Concern, CDFW Special Animals and Western Riverside MSHCP Species

Several California species of Special Concern, CDFW Special Animals and MSHCP covered species, including amphibians, reptiles, birds, and mammals are either known to occur in the project area or have at least some potential to occur in the project area. These species are described below and include a variety of vertebrate species.

Amphibians

The western spadefoot toad, an amphibian species covered by the Western Riverside MSHCP and listed as a California Species of Special Concern has the potential to occur in the project area. Direct impacts include being hit by vehicles on access roads, mechanical crushing during grading, exposure to fugitive dust, and general disturbance due to increased human activity. Furthermore, implementation of the proposed action would result in permanent loss and temporary disturbance of various habitats throughout the project area. Indirect impacts to these species include compaction of soils and the introduction of exotic plant species. Operational impacts could include risk of mortality by vehicles and disturbance on access roads by maintenance personnel.

Project related impacts to these species were not specifically addressed in the 2001 SEIS/EIR, although general impacts to amphibians and other wildlife were addressed. To ensure that impacts to amphibian species covered under the Western Riverside MSHCP and listed as a California Species of Special Concern are avoided or minimized, a series of mitigation measures from the 2001 SEIS/EIR and additional environmental commitments developed for this document would be implemented. In order to offset impacts associated with permanent loss or temporary disturbance to habitats in which these species could potentially occur, mitigation measure BR-14A would be implemented, which requires the restoration and maintenance of temporarily disturbed areas to native habitat following project construction activities.

Additional measures would be implemented to minimize and/or avoid impacts to Western Riverside MSHCP covered and California Species of Special Concern amphibians associated with mortality due to vehicular or mechanical crushing, exposure to fugitive dust, the spread and colonization of invasive weeds, and increased human presence. These include EC-BR-3, which requires pre-construction surveys; EC-AQ-2 and EC-AQ-14, which requires the implementation of techniques to control fugitive dust; EC-BR-4, which requires worker/environmental training; and EC-BR-6, which ensures compliance with all mitigation measures, environmental commitments and construction monitoring during construction activities. A full list of mitigation measures and environmental commitments can be found in Chapter 6 of this document.

Conclusion:

Implementation of these mitigation measures and environmental commitments will result in less than significant impacts to Western Riverside MSHCP covered and California Species of Special Concern amphibians.

Reptiles

The project area may support a variety of small, terrestrial reptiles, such as western pond turtle, silvery legless lizard, orange-throated whiptail, coastal whiptail, south coast garter snake, red diamond rattlesnake, California mountain kingsnake, and coast horned lizard. These species are covered by the Western Riverside MSHCP and are California Species of Special Concern. Western pond turtle was observed during the surveys in an area of ponded water just north of the project area. South coast garter snake was observed within the limits of the project borrow area.

Direct impacts to these species would include being hit by vehicles on access roads, mechanical crushing during grading, exposure to fugitive dust, and general disturbance due to increased human activity. Implementation of the proposed action would also result in permanent loss and temporary disturbance of habitat throughout the project area. Indirect impacts to these species include compaction of soils and the

introduction of exotic plant species. Operational impacts could include risk of mortality by vehicles and disturbance on access roads by maintenance personnel.

Project related impacts to these species were not specifically addressed in the 2001 SEIS/EIR, although general impacts to amphibians and other wildlife were addressed. To ensure that impacts to reptile species covered under the Western Riverside MSHCP, California Species of Special Concern, or species listed as a CDFW Special Animal are avoided or minimized, a series of mitigation measures from the 2001 SEIS/EIR and additional environmental commitments developed for this document would be implemented.

These include EC-BR-3, which requires pre-construction surveys in the project area; EC-AQ-2 and AQ-14, which requires the implementation of techniques to control fugitive dust; BR-14A, which requires the restoration and maintenance of temporarily disturbed areas to native habitat following project construction activities; and EC-BR-3, which requires a pre-construction surveys of the project site. A full list of mitigation measures and environmental commitments can be found in Chapter 6 of this document.

Conclusion:

Implementation of these mitigation measures and environmental commitments in Chapter 6 will result in less than significant impacts to Western Riverside MSHCP covered species, California Species of Special Concern or CDFW Special Animal reptiles.

Birds

Several bird species including a variety of raptors, vultures and owls covered under the MSHCP, and/or considered California Species of Special Concern, and/or listed as a CDFW Special Animal have the potential to occur in the project area. These include, but are not limited to raptors and vultures such as Cooper's hawk, sharp-shinned hawk, ferruginous hawk, merlin, prairie falcon, northern harrier, and turkey vultures. Sensitive owls including burrowing owl, long eared owl, and short eared owls; and small song birds such as grasshopper sparrow, yellow warbler, California horned lark, yellow-breasted chat, loggerhead shrike, Lincoln's sparrow, vermilion flycatcher, and Downy woodpecker. Various shore birds that may occur in the project area include great blue heron, American bittern, double-crested cormorant, and white-faced ibis.

All proposed project activities would be subject to the MBTA. Implementation of the proposed construction would not substantially reduce habitat available for these species, restrict their range, or cause their regional populations to drop below self-sustaining levels.

Direct, indirect, and operational impacts to sensitive birds and raptors would be the same as described for nesting birds.

Project related impacts to some MSHCP covered, California Species of Special Concern or CDFW Special Animal birds and/or raptors have been briefly analyzed in the 2001 SEIS/EIR. Impacts to these species that were addressed in the 2001 SEIS/EIR were limited to those related to the permanent loss and temporary disturbance of habitat. The amount of vegetation that would be removed or disturbed is very small relative to available habitat in the region. Consequently, the impact on each species individually would be considered less than significant. Nonetheless, a series of mitigation measures provided in the 2001 SEIS/EIR and additional environmental commitments developed for this document would be

implemented to further ensure that impacts to MSHCP covered, California Species of Special Concern or CDFW Special Animal bird species are minimized and/or avoided. These include measures to offset the permanent loss and temporary disturbance of suitable breeding and/or foraging habitats, such as BR-14A, which requires the restoration and maintenance of temporarily disturbed areas to native habitat following project construction activities; BR-13 and BR-14, which require installation of sound barriers around construction areas to minimize noise and visual impacts to sensitive species; EC-BR-8, which requires a qualified individual to conduct noise monitoring during construction activities to minimize noise impacts to sensitive species; and BR-11 and BR-14C, which require vegetation clearing to be conducted outside of the nesting season.

Additional mitigation measures and environmental commitments include: EC-AQ-2 and AQ-14, which require the implementation of techniques to control fugitive dust; EC-BR-4, which requires worker/environmental training; and EC-BR-6, which ensures compliance with all mitigation measures, environmental commitments and construction monitoring during construction activities. A full list of mitigation measures and environmental commitments can be found in Chapter 6 of this document.

Conclusion:

Implementation of these mitigation measures and environmental commitments described in chapter 6 will result in less than significant impacts to MSHCP covered, California Species of Special Concern or CDFW Special Animal bird species.

Mammals

The proposed project area supports suitable habitat for a variety of mammals that are covered under the MSHCP, including coyote, badger, dulzura kangaroo rat, San Diego black-tailed jackrabbit, bobcat, long-tailed weasel, mountain lion, and brush rabbit. As previously mentioned, the proposed project area and surrounding open spaces represent important habitat for these species. Use of the project site is also a factor of the home range of the species. Small fossorial mammals with restricted home ranges such as dulzura kangaroo rat or brush rabbit are more adversely effected by project activities compared to wide ranging species such as bobcat or coyote. Direct impacts to smaller mammals, such as San Diego black-tailed jackrabbit and long-tailed weasel, would be similar to those described above for reptiles. These would include the permanent loss and temporary disturbance of habitat, mortality due to vehicular or mechanical crushing, exposure to fugitive dust, and general disturbance due to increased human activity. Direct impacts would also include a disruption to regional movement within the project area during construction activities. Indirect effects to MSHCP covered mammals would include the degradation of habitat due to the colonization and spread of invasive weeds. Operational impacts could include risk of mortality by vehicles and disturbance on access roads by maintenance personnel.

Project related impacts to these species were not specifically addressed in the 2001 SEIS/EIR, although general impacts to wildlife and wildlife movement were addressed. To ensure that impacts to mammal species covered under the MSHCP are avoided or minimized, a series of mitigation measure from the 2001 SEIS/EIR and additional environmental commitments developed for this document would be implemented. In order to offset impacts associated with permanent loss or temporary disturbance to habitats in which MSHCP covered mammal species could potentially occur, mitigation measures such as BR-14A, which require the restoration and maintenance of temporarily disturbed areas to native habitat following project construction activities; BR-13 and BR-14, which require installation of sound barriers around construction areas to minimize noise and visual impacts to sensitive species; EC-BR-8, which requires a qualified individual to conduct noise monitoring during construction activities to minimize

noise impact to sensitive species; EC-BR-3, which requires a pre-construction surveys of the project site, BR-11 and BR-14C, which require vegetation clearing to be conducted outside of the nesting season.

Additionally, mitigation measures and environmental commitments developed for this document would be implemented. These would include EC-AQ-2 and AQ-14, which requires the implementation of techniques to control fugitive dust; EC-BR-4, which requires worker/environmental training; and EC-BR-6, which ensures compliance with all mitigation measures, environmental commitments and construction monitoring during construction activities. A full list of mitigation measures and environmental commitments can be found in Chapter 6 of this document.

Conclusion:

Implementation of these mitigation measures and environmental commitments will result in less than significant impacts to MSHCP covered mammals.

Wildlife Movement

Wildlife corridors provide a variety of functions and can include habitat linkages between natural areas; provide greenbelts and refuge systems; and divert wildlife across permanent physical barriers such as highways and dams by roadway underpasses and ramps (Hass, 2000; Simberloff *et al.*, 1992). Generally, the accepted definition describes a wildlife corridor as a linear habitat, embedded in a dissimilar matrix that connects two or more larger blocks of habitat (Beier and Noss, 1998). Noss (1987) also suggests several potential advantages to corridors, including increased species richness and diversity, decreased probability of extinction, maintenance of genetic variation, a greater mix of habitat and successional stages, and alternative refugia from large disturbances.

Although impacts to wildlife movement have been analyzed in areas west of the project area in regards to movement to/from the Cleveland National Forest and Chino Hills State Park, there has been no known widespread analysis conducted within the project area as a corridor for wildlife movement. Although sufficient evidence is lacking, the SAR and Temescal Wash, and its associated uplands, are recognized as vital pathways for wildlife movement.

As addressed in the 2001 SEIS/EIR, any construction activities within the SAR watershed that may impede wildlife movement have the potential to impose significant impacts. This is the case due to the SAR watershed's ecological importance for wildlife using the area to transition between fragmented habitats in the region. However, several existing infrastructure features, such as Prado Dam, State Routes 91 and 71, and Highway 15 are already in place and currently contribute significantly as impediments to regional wildlife movement, including movement through the SAR corridor where the project area is located. As mentioned in the 2001 SEIS/EIR, the proposed flood control improvements would contribute little, if any, long-term effects to wildlife movement through the region. Alcoa Dike will be a linear feature constructed roughly parallel to Temescal Wash and will not be a physical impediment to or block any known movement pathways. Furthermore, implementation of mitigation measures provided in the 2001 SEIS/EIR and additional environmental commitments developed for this document will be implemented to ensure that impacts to wildlife movement corridors and habitat linkages in the project area would not result in significant impacts to wildlife movement.

4.2.2.3 Future Maintenance

Future maintenance activities may include routine inspections and monitoring of project structures by using access roads constructed for this project, periodic weeding, patching grouted stone, vegetation

free/asphalt road maintenance, periodic clearing of debris around drainage structures; and, periodic repairs to fencing and gates.

Most inspections and minor repairs would be confined to paved maintenance and access roads. Impacts to native vegetation and wildlife, therefore, would be minimal.

During inspections and repairs, nesting birds and other wildlife could be disturbed by noise, human activity, and fugitive dust from driving on unpaved access roads. However, this is expected to be minimal, short term, and would not directly affect adjacent habitat. If repairs are required, potential effects to nesting birds and wildlife would likely be similar to those described for construction of the proposed project, but would be of a smaller magnitude because repair activities would not generally include substantial ground disturbance and would be completed over a short time period (usually one day to one week of minor construction activity).

4.2.3 Previously Approved Design Alternative

Under the Approved GDM Design Alternative, the design modifications included under the Proposed Project would not be implemented, and the Alcoa Dike would be constructed as previously approved. Impacts would be as described under the 2001 SEIS/EIR, although vegetation impacts would be greater than previously estimated as revealed by more detailed GIS mapping that is now available in this document.

4.3 WATER RESOURCES AND HYDROLOGY

4.3.1 Introduction

The Proposed Action is similar to the previously approved design alternative and associated sponsor real estate actions except for the changes identified in Table 2.2-1. Therefore, a new impact would only occur if it is associated with the project modifications, or as a result of a changed environmental condition. Impacts would be significant if the Proposed Action would cause one or more of the following conditions to occur:

- Substantially alter drainage patterns or the rate and amount of surface runoff;
- Cause or result in substantial flooding;
- Substantially alter stream flow within the Santa Ana River or Temescal Creek;
- Substantially degrade water quality; and/or
- Interfere substantially with groundwater recharge.

The affected environment for water resources and hydrology is presented in Section 3.3, and does not include any substantially different condition than were present when the Alcoa Dike was originally approved.

As described in Table 2.2-1 (Comparison of Previously Approved Design and the Proposed Action), following are the primary differences between the previously approved Alcoa Dike and the Proposed Action, as relevant to water resources and hydrology: approximately 2,000 additional feet of bank protection; reduction in the size of the ponding area for interior drainage (northwest corner of Rincon Street and Auburndale Street); two additional ponding areas for interior drainage (Smith Avenue between Rincon Street and Butterfield Drive, and northeast corner of Rincon Street and Auburndale Street); a concrete v-ditch and 36 inch drainage path to Temescal Creek; one 36-inch drainage structure extending through the main dike embankment and three other culverts extending through roadway embankments; horizontal swing floodgate at Auburndale Road and reinforced concrete floodwall on each side of the

floodgate; and 15-foot maintenance access road on both sides of the toe of the embankment. For the purposes of this SEA and EIR Addendum, analysis of potential water resources and hydrology impacts associated with project modifications under the Proposed Action is provided below.

4.3.2 Proposed Action

Proposed modifications to the previously authorized project were reviewed to determine if they would affect water resources or hydrology differently or to an extent not previously addressed. The discussion below addresses whether the proposed modifications to the previously approved Alcoa Dike flood control improvements would significantly impact the nature or magnitude of hydrology and water resources. All environmental commitments identified in the 2001 Final EIS/EIR are applicable to the Proposed Action.

- *Substantially alter drainage patterns or the rate and amount of surface runoff.* As described in Section 2.2, the Proposed Action would include flood control improvements to protect privately owned and public property and development in the project area. During a storm event, the proposed Alcoa Dike would inhibit flows representing the Probable Maximum Flood water surface elevation from flooding this area; the dike would not substantially alter overall drainage patterns of the area. As described in Section 3.3.2 (Temescal Wash and Santa Ana River), the rate of surface water runoff in the Santa Ana Basin is largely affected by urbanization throughout the area, and associated impermeable surfaces that result in higher peak discharges with a shorter peaking time and a greater volume than the same flows in an undeveloped area. Implementation of the proposed Alcoa Dike with modifications associated with the Proposed Action would not substantially alter the rate and amount of surface runoff in the area. No significant impact would occur.
- *Cause or result in substantial flooding.* The alignment of the proposed Alcoa Dike would interrupt stormwater flows to protect public and private property in the area from flooding-related impacts. As described in the 1988 Phase II GDM/SEIS, construction of the proposed Alcoa Dike would include the control and diversion of impounded water in the Prado Dam reservoir as well as local runoff from the drainage area south of the dike. Construction activities that occur during the winter months would be subject to runoff from the drainage area south of the dike; however, culverts under the embankment would be installed prior to winter construction and would provide sufficient protection against adverse flooding effects. The Proposed Action includes a 1200-foot long 12 ft wide concrete v-ditch drainage path to Temescal Creek; one 36-inch drainage structure extending through the main dike embankment and three other culverts extending through roadway embankments. In addition, as described above, the Proposed Action would include a total of three ponding areas; these features are for the purpose of interior drainage behind the dike and would not cause or result in substantial flooding. The Proposed Action would not cause or result in substantial flooding, and the proposed Alcoa Dike would not result in significant flooding impacts.
- *Substantially alter stream flow within the Santa Ana River or Temescal Creek.* Construction of the proposed Alcoa Dike would not occur within the flows of the Temescal Creek or Santa Ana River. This area is subject to flooding during low-frequency storm events, and the project has been designed to contain elevated flows and to protect public and private property from flood-related damage. Surface drainage from upland areas may be impeded by the Prado Basin dikes and accumulate behind the dikes during storms; however, this effect would be temporary. Interior drainage will be ponded in proposed Ponds IA, I, and II which will be connected by culverts sized to convey the standard project flood (SPF) flow with minimal flooding to the bordering roadways. There will be minimal excavation of the existing ground within the designated ponding areas. No changes to existing drainage patterns would occur, and the Proposed Action would not directly cause or contribute to water level fluctuations in Temescal Creek and the Santa Ana River. No substantial changes in drainage patterns would result from implementation of the proposed Alcoa Dike, and no alterations to stream flow within the Temescal Creek or Santa Ana River would occur.

- *Substantially degrade water quality.* Construction, operation, and maintenance of the proposed Alcoa Dike would include soil-disturbing activities that could result in soil erosion and sedimentation that may subsequently cause and/or contribute to water quality degradation, particularly if a precipitation event occurs while soils are actively disturbed. The potential also exists for impacts to surface and groundwater quality to result from accidental leaks or spills of potentially hazardous materials, including fuels and lubricants required for operation of construction vehicles and equipment. However, as found in the 2001 Final SEIS/EIR, waiver of 401 Certification was obtained pursuant to the Corps CWA implementing regulations (33 CFR 336.1[a][1]).

The contractor for the Proposed Action is required to develop and implement a Storm Water Pollution Prevention Plan (SWPPP) that will include Best Management Practices (BMPs) to protect the quality of stormwater runoff. An Erosion and Sedimentation Control Plan, included as part of the SWPPP, would identify BMPs to minimize the potential for surface runoff to pick up loose soils and transport them downstream. Such BMPs may include but are not limited to the following:

- Limit the amount of exposed areas during construction activities;
- Excavate only when water flow is absent or minimal; and
- Divert water away from construction activities.

The SWPPP would also contain a spill prevention plan to identify proper storage locations and provide remediation measures for clean-up of accidental spills and leaks of hazardous materials, as necessary. BMPs set forth in the SWPPP would be applied to all areas disturbed by construction activities, including the site-specific locations of the proposed Alcoa Dike, construction staging area(s), transportation route(s), and borrow site(s). Implementation of the required SWPPP and associated BMPs would minimize and/or avoid potential water quality impacts; the Proposed Action would not substantially degrade water quality.

- *Interfere substantially with groundwater recharge.* Interference with groundwater recharge could occur if implementation of the Proposed Action withdraws groundwater in quantities that cause the underlying basin to be affected by overdraft conditions, and/or if the project reduces infiltration rates in the area by introducing substantial new impermeable areas. During construction of the Proposed Action, a water source would most likely be secured through the City of Corona (Section 2.4.2.5), although the construction contractor will identify the final water source. No new groundwater well(s) would be installed as part of the project. The Alcoa Dike would introduce new impervious surfaces to the project area; however, this would not substantially affect groundwater recharge, which predominantly occurs through natural infiltration and managed groundwater recharge by the Orange County Water District and other agencies that comprise the Santa Ana Watershed Project Authority (SAWPA), a Joint Powers Authority.

As described in Section 3.3.3 (Groundwater), depth to groundwater in the Santa Ana Basin ranges from several hundred feet below ground surface (bgs) near the mountains to near land surface along rivers, wetlands, and in the coastal plain. Therefore, there is potential that groundwater could be encountered during construction of the Alcoa Dike. If groundwater is encountered during construction activities for the Proposed Action, dewatering of the construction site would be required to avoid and/or minimize potential impacts to groundwater supply and quality. Neither construction nor operation and maintenance would interfere substantially with groundwater recharge.

Impacts to water resources and hydrology associated with implementation of the Proposed Action would not be significant. In addition, as described in the 2001 Final SEIS/EIR, environmental commitments (ECs) identified in the *1988 Phase II GDM/SEIS* would be implemented as part of the Proposed Action. The original ECs, titled Sedimentation, Water Quality – Turbidity, Water Quality – Toxics, and Permits,

were presented in Table SEIS-16 (Environmental Commitments) of the *1988 Phase II GDM/SEIS* (page SEIS-VI-2). These ECs have been updated for specificity, and include the following:

- EC-WR-1 (Construction Stormwater Pollution Prevention Plan),
- EC-WR-2 (Hazardous Materials Management Plan and Emergency Response Plan), and
- EC-WR-3 (Water quality permits).

The full text of EC-WR-1, EC-WR-2, and EC-WR-3 is presented in Section 6 (Environmental Commitments) of this SEA and EIR Addendum.

Future Maintenance. Section 2.5 (Future Operation and Maintenance) of this SEA describes that future maintenance would include routine inspections and minor repairs, as needed. Future maintenance activities would not alter the overall hydrology or drainage patterns of the area, but may introduce potential water quality impacts associated with the use of motorized vehicles and equipment. Modifications included under the Proposed Action would not introduce new maintenance requirements or associated impacts to hydrology and water resources; all maintenance-related impacts would be less than significant, as described in the 2001 Final EIS/EIR.

4.3.3 Previously Approved Design Alternative

The Previously Approved Design Alternative is defined as constructing the Alcoa Dike flood control improvements for public and privately owned development in the project area exactly according to the “authorized” or 2001 SEIS/EIR plans. The Proposed Action differs from this alternative primarily in the design alignment to accommodate the reduction in size of one percolation pond and the inclusion of three additional percolation ponds, and the increased length of bank materials. Potential impacts to water resources and hydrology under the Previously Approved Design Alternative would be slightly less than the Proposed Action, because the construction of 2,000 less feet of bank protection would require less intensive usage of construction vehicles and equipment that could result in accidental spill or leak of hazardous materials. Overall, potential impacts to water resources and hydrology would still be less than significant.

4.4 EARTH RESOURCES

4.4.1 Introduction

The Proposed Action is similar to the previously approved design alternative and associated sponsor real estate actions except for the changes identified in Table 2.2-1. Therefore, a new impact would only occur if it is associated with the project modifications, or as a result of a changed environmental condition. Impacts would be significant if the Proposed Action would cause one or more of the following conditions to occur:

- Cause substantial flooding, erosion, or siltation;
- Expose people or structures to major geologic hazards; and/or
- Result in unstable earth conditions or changes in geologic substructure.

4.4.2 Proposed Action

The affected environment for earth resources is presented in Section 3.4, and does not include any conditions that are substantially different than were present when the Alcoa Dike was originally approved. For the purposes of this SEA and EIR Addendum, analysis of potential earth resources impacts associated with project modifications under the Proposed Action is provided below.

Proposed modifications to the previously authorized project were reviewed to determine if they would affect earth resources to an extent not previously addressed. The discussion below addresses whether the proposed modifications to the previously approved Alcoa Dike flood control improvements would alter the nature or magnitude of earth resources impacts described in the 2001 Final EIS/EIR.

- *Cause substantial flooding, erosion, or siltation.* As described in Section 4.3 (Water Resources and Hydrology), the Proposed Action would not result in significant flooding impacts. Design aspects of the previously-authorized Alcoa Dike that would serve to prevent flooding include culverts that would be installed under the embankment prior to winter construction, and would provide sufficient protection against flooding, as well as grading of the bottom of the borrow pit (following completion of construction) to drain to existing water courses and prevent ponding of water. In addition, the borrow pit and other temporary work areas used during construction of the Alcoa Dike would be re-seeded and re-vegetated following completion of construction, thereby minimizing and/or avoiding potential erosion- or siltation-related effects associated with soil disturbance. Additionally, as described in Section 4.3 (Water Resources and Hydrology) of this SEA and EIR Addendum, a SWPPP including BMPs and Erosion and Sedimentation Control Plan would be developed and implemented prior to and during construction. The Proposed Action would result in no earth resources and geology impacts associated with substantial flooding, erosion, or siltation.
- *Expose people or structures to major geologic hazards.* Prado Basin is located in a seismically active region of southern California, and there is potential for earthquake, strong groundshaking, fault movement or rupture, and/or other geologic hazards to occur during the lifetime of the Alcoa Dike. As described in the *1988 Phase II GDM/SEIS*, the proposed Alcoa Dike has been designed in accordance with the requirements of ER 1110-2-1806, "Earthquake Design and Analysis for Corps of Engineers Projects". Failure of the proposed Alcoa Dike with high flood pool due to earthquake shaking would expose downstream roadways, recreational fields, vacant parcels and the airport to flood hazards. However, these locations are flooding currently as well. Due to the potentially high groundwater table as well as alluvial nature of the basin fill, liquefaction potential was also considered in the design of project components. However, the dike would be highly compacted to an average of 98 percent density, and the materials used would not substantially lose strength under the design earthquake loading, and would not liquefy during strong shaking (USACE, 1988 [Appendix B, p. B-XIV-14]). In addition, also as described in the *1988 Phase II GDM/SEIS*, the condition of a flood pool occurring simultaneously with a design earthquake that would introduce the potential for downstream flooding if the dike were to fail is considered highly improbable due to the infrequent occurrence of design floods and the relatively short pool duration. The Proposed Action would not cause substantial earth resources and geology impacts associated with the exposure of people or structures to major geologic hazards.
- *Result in unstable earth conditions or changes in geologic substructure.* The foundation of the proposed Alcoa Dike may exhibit a small amount of settling during the construction period. Total estimated post-construction settlement of the embankment and foundation is expected to be less than 24 inches (USACE, 1988 [Appendix B, p.B-XV-3]). The Proposed Action would result in no earth resources and geology impacts associated with landslides. The Proposed Action would not result in significant impacts associated with unstable earth conditions or changes in geologic substructure, including as related to settlement and landslides.

As described above, the Proposed Action would not cause substantial earth resources and geology impacts.

Future Maintenance. Section 2.5 (Future Operation and Maintenance) of this SEA describes that future maintenance would include routine inspections and minor repairs, as needed. Future maintenance activities would not alter the overall geologic characteristics of the area, and is not expected to cause

substantial flooding, erosion, or siltation; expose people or structures to major geologic hazards; or result in unstable earth conditions or changes in geologic substructure.

4.4.3 Previously Approved Design Alternative

The Previously Approved Design Alternative is defined as constructing the Alcoa Dike flood control improvements exactly according to the “authorized” or 2001 SEIS/EIR plans. The Proposed Action differs from this alternative primarily in the design alignment to accommodate the reduction in size of one percolation pond and the inclusion of two additional percolation ponds, and the increased length of bank materials. Potential impacts to earth resources would be similar to those described above for the Proposed Action, although less soil disturbance would be required due to the shorter alignment, and would be less than significant.

4.5 LAND USE

4.5.1 Introduction

On-site land uses include vacant land that consists of non-native grasslands, non-native woodlands, and riparian scrub, while the southwest portion of the Proposed Action would traverse Butterfield Park. Existing land uses surrounding project site include the Corona Municipal Airport, light industrial development, and single family residences. The Proposed Action is similar to the previously approved design alternative and associated sponsor real estate actions except for the changes identified in Table 2.2-1. Therefore, a new impact would only occur if it is associated with the project modifications, or as a result of a changed environmental condition. Impacts would be significant if the Proposed Action would cause one or more of the following conditions to:

- be incompatible with existing land uses; or
- conflict with applicable plans or policies.

4.5.2 Proposed Action

The Proposed Action is similar to the previously approved design alternative and associated sponsor real estate actions except for the changes identified in Table 2.2-1.

Incompatible with existing land uses Construction of these flood control improvements would interfere with recreational activities within Butterfield Park since the temporary work limits of the proposed project include areas within the park. The revised design in the Proposed Action would construct four ponding areas compared to a single ponding area as described in the 2001 Final SEIS/EIR. This would result in permanent replacement of a portion of the park that includes the eastern-most softball field. However, Butterfield Park is located on Corps land intended for flood control purposes and effects from the revised ponding area design of the Proposed Action would be similar to those described in the 2001 Final SEIS/EIR. Consequently, the elimination of the easternmost softball field and the adjacent portion of parkland would be unavoidable under the Proposed Action, but would not be considered significant. In order to facilitate City of Corona’s (owners of Butterfield Park) preparation for this construction activity and resulting impacts to the park, Section 6.1 (Environmental Commitments) has been updated from the 2001 Final SEIS/EIR to include EC-LU-1. EC-LU-1 requires preparation of submittal of a Butterfield Park Construction and Maintenance Plan to the City of Corona’s Parks and Community Services Department Prior to commencement of construction within Butterfield Park, to include, at a minimum, dates and duration of construction, future maintenance activities and procedures for notifying the city of such, etc. In addition, the purpose of the proposed project is to provide flood protection to the City of

Corona; therefore, the Proposed Action would be beneficial for the other surrounding lands uses including the light industrial, residential development, and other privately owned development in the project area.

Conflict with applicable plans or policies The City of Corona General Plan has identified goals for development within the City limits. The majority of the proposed project site is within the Open Space General designation, which “...applies to lands permanently committed or protected for open space purpose due to their value as... public safety (e.g., flood control channels), or comparable purpose” (Corona, 2007). In addition, Chapter 4 (Infrastructure and Public Services) of the City’s General Plan includes policies requiring infrastructure for flood control. Therefore, the project would not be inconsistent with the City’s General Plan.

The City of Corona’s zoning designations that apply to the proposed project site are Agricultural, Light Industrial, and Open Space. The Agricultural and Light Industrial designations do not specifically prohibit or permit flood control facilities; and the Open Space designations allows for “...flood control channels and land devoted to water storage” (Corona, 2012). The proposed project site is also within the FEMA’s 100-year flood zone, which requires implementation of federal, State, and City flood control regulations and maintenance practices as appropriate. Therefore, the objective of the proposed project to provide flood protection complies with the City’s flood control policies.

In order to be consistent with the *Western Riverside County Multi-Species Habitat Conservation Plan (MSHCP)*, and to ensure that impacts to invertebrate species covered under the MSHCP are avoided or minimized, a series of mitigation measures from the 2001 SEIS/EIR and environmental commitments developed for this document would be implemented. Refer to Section 4.2 (Biological Resources) for details of the proposed mitigation.

Future Maintenance. Future maintenance of the proposed Alcoa Dike Embankment would include routine inspections and minor repairs of the embankment and its associated features after construction is completed (see Section 2.5 for a detailed list of future maintenance activities). These activities may temporarily interfere with recreational activities, but would not be permanently incompatible with existing on-site or surrounding land uses.

4.5.3 Previously Approved Design Alternative

Under the Previously Approved Design Alternative, project modifications included under the Proposed Action would not be implemented, and the project would be constructed as described in the 2001 SEIS/EIR. Construction of this alternative would also interfere with Butterfield Park; and therefore, would result in the same incompatibilities with existing land uses as the Proposed Action. However, the land that would be occupied by this alternative is designated for flood control, and therefore, would not be inconsistent with local plans and policies.

4.6 AESTHETICS

4.6.1 Introduction

The Proposed Action is similar to the previously approved design alternative and associated sponsor real estate actions except for the changes identified in Table 2.2-1. Therefore, a new impact would only occur if it is associated with the project modifications, or as a result of a changed environmental condition. Impacts would be significant if the Proposed Action would cause one or more of the following conditions to occur:

- have a substantial adverse effect on a scenic vista;

- substantially degrade the existing visual character or quality of the site and its surroundings;
- or create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

4.6.2 Proposed Action

Substantial adverse effect on a scenic vista, degradation of the existing visual character or quality of the site and its surroundings The project area contains a variety of views and perspectives which reflect the diversity of land uses found from the recreation and open space of the Butterfield Park north of the project site, the Corona Municipal Airport west of the site, light industrial development lining the southern boundary of the project site, and single family residential development located north and west of the site. With the exception of the surrounding open space, the existing visual character of the region is low and does not provide for a particularly pleasing viewscape given the pervasive development surrounding the majority of the proposed project site.

Development of the project would be visible during the construction phase of the project. Construction activities and facilities would include construction of the dike (approximately 7,553 feet in length) and three ponding areas; a staging area located at the corner of Lincoln Avenue and Rincon Street; road improvements along Rincon Street, Auburndale Street, Smith Avenue, and Butterfield Drive; and a borrow area and approximate 1.5-mile haul route located west of the proposed project site. The staging area and equipment associated with the construction would be adjacent to Butterfield Park, the open space to the north, and the light industrial development to the south. Therefore, construction activities would be visible to recreationalists, pedestrians, and employees and patrons of the light industrial facilities. However, given that construction activities are temporary, these impacts would be considered less than significant.

The proposed project would not permanently impinge on a scenic vista or degrade the visual character of the site since the proposed project site consists of the borderland between open space and light industrial development. Most views of the project site are currently limited, but viewers may observe previously disturbed grasslands from the surrounding recreation facilities and light industrial developments. This view would be blocked by the proposed dike, which is designed to rise an average of 22 ft above existing ground surface. In addition, the proposed project site has limited viewing opportunities for local residential communities. As such, although development of the Alcoa Dike embankment would permanently change the conditions or views of the proposed project site from the existing conditions, the project would not substantially degrade the existing visual character or quality of the site and its surroundings. Impacts would be considered less than significant.

The closest officially designated State scenic highway is Route 91 from Route 55 to the east end of the City of Anaheim, which is approximately five miles east of the project site. Therefore, the proposed project would not result in impacts on a State scenic highway or other scenic roadway.

Substantial light or glare Artificial light may be necessary rarely during the construction period since the proposed construction hours would be 7:00 a.m. to 6:00 p.m. Monday through Saturday. In addition, the proposed project site is immediately surrounded by open space and light industrial development. Therefore, any impacts associated with light and glare would be temporary and would not affect the surrounding residential areas. Impacts would not be considered significant.

Future Maintenance. Future maintenance of the proposed Alcoa Dike Embankment would include routine inspections and minor repairs of the embankment and its associated features after construction is

completed (see Section 2.5 for a detailed list of future maintenance activities). Routine maintenance of the embankment would not alter the visual character of the site, nor would such activities degrade the visual quality of the site.

4.6.3 Previously Approved Design Alternative

Under the Previously Approved Design Alternative, project modifications included under the Proposed Action would not be implemented, and the project would be constructed as previously approved. Impacts due to this alternative would be the same as described in the 2001 Final SEIS/EIR. As with the proposed project, construction of this alternative would alter the visual character of the site, but would not substantially degrade an area with valuable scenic resources.

4.7 RECREATION

4.7.1 Introduction

The Proposed Action is similar to the previously approved design alternative and associated sponsor real estate actions except for the changes identified in Table 2.2-1. Therefore, a new impact would only occur if it is associated with the project modifications, or as a result of a changed environmental condition. Impacts would be significant if the Proposed Action would cause one or more of the following conditions to occur:

- be incompatible with surrounding or on-site uses;
- be inconsistent with plans and policies;
- substantially affect the long-term provision of, or access to, recreational uses within the area; or
- prevent existing land uses from continuing in substantially the same manner.

4.7.2 Proposed Action

As described in Section 3.7, a variety of parks and recreational facilities are located in the vicinity of the Alcoa Dike Project. Butterfield Park would be located within the temporary work limits of the proposed project and an approximately 400-foot section of dike and a ponding area would permanently replace a portion of Butterfield Park and the eastern-most softball field within the park. While the project footprint would include a portion of the Santa Ana River Trail & Parkway, this segment of the trail is being developed to coordinate with the Alcoa Dike Project. The modifications to the previously approved project would not introduce new recreation impacts to the majority of parks and recreation facilities in the vicinity of the Proposed Action.

Similar to the effects described in the 2001 Final SEIS/EIR, the Proposed Action would temporarily preclude access to and use of portions of Butterfield Park and would also prevent the easternmost softball field in Butterfield Park from continuing to be used as a recreational facility. Butterfield Park, however, is located on Corps land intended first and foremost for flood control purposes and the portion of the park affected by the Proposed Action, including the easternmost softball field, had been planned for flood control facilities in the 2001 Final SEIS/EIR. Consequently, the elimination of the easternmost softball field and the adjacent portion of parkland would be unavoidable under the Proposed Action, but would not be considered significant. In order to facilitate City of Corona's (owners of Butterfield Park) preparation for this construction activity and resulting impacts to the park, including recreational facilities, Environmental Commitment EC-LU-1, described above in Section 4.5 (Land Use) has been updated from the 2001 Final SEIS/EIR and would be incorporated into contract specifications. EC-LU-1

requires preparation of submittal of a Butterfield Park Construction and Maintenance Plan to the City of Corona's Parks and Community Services Department Prior to commencement of construction within Butterfield Park, to include, at a minimum, dates and duration of construction, future maintenance activities and procedures for notifying the city of such, etc.

Additionally, because the parkland affected by the Proposed Action has always been planned for flood control purposes, the Proposed Action would not be incompatible with surrounding or on-site uses or be inconsistent with plans and policies, and its effect on long-term provision of, or access to, recreational uses within the area would be less than significant. As well, since the remaining portion of the park would remain as is with loss of functionality, the Proposed Action would allow existing land uses to continue in substantially the same manner, i.e. its effects would be less than significant. The segment of the Santa Ana River Trail & Parkway planned for the project footprint is being designed for consistency with the Alcoa Dike Project.

Future Maintenance. As described in Section 2.5 (Future Operation and Maintenance) of this SEA/EIR Addendum, future maintenance would include routine inspections and minor repairs, as needed. Modifications included under the Proposed Action would not introduce new maintenance requirements or associated impacts to recreation. All maintenance-related impacts to recreation would be less than significant, as described in the 2001 SEIS/EIR.

4.7.3 Previously Approved Design Alternative

Under the Previously Approved Design Alternative, the Alcoa Dike would be constructed as approved in the 2001 SEIS/EIR, without the project modifications included under the proposed project. Potential impacts of the Previously Approved Design Alternative would be less than significant, as described in the 2001 SEIS/EIR.

4.8 NOISE

4.8.1 Introduction

A project is considered to have a significant impact if it will substantially increase ambient noise levels for adjacent sensitive receptors. Long-term impacts will not occur from the operational characteristics of the proposed project. However, short-term noise impacts could occur as a result of construction activity associated with the Alcoa Dike project. The Proposed Action is similar to the previously approved design alternative and associated sponsor real estate actions except for the changes identified in Table 2.2-1. Therefore, a new impact would only occur if it is associated with the project modifications, or as a result of a changed environmental condition. Impacts would be significant if the Proposed Action would cause one or more of the following conditions to occur:

- Conduct construction outside of allowable hours per the County of Riverside Municipal Code without obtaining a variance or exemption.
- Conduct construction outside of allowable hours per the City of Corona Municipal Code without obtaining a variance or exemption.

Riverside County General Plan. The 2008 Riverside County General Plan includes the following applicable noise policies (Riverside County, 2012a):

- Noise Element Policy N.1.1. Protect noise-sensitive land uses from high levels of noise by restricting noise-producing land uses from these areas. If the noise producing land use cannot be relocated, then noise buffers such as setbacks, landscaping, or blockwalls shall be used.

- Noise Element Policy N.1.3. Consider the following uses noise-sensitive and discourage these uses in areas in excess of 65 decibels (dBA) on a Community Noise Equivalent Level (CNEL):¹ schools, hospitals, rest homes, long-term care facilities, mental care facilities, residential uses, libraries, passive recreation uses, and places of worship. [. . .] an acoustical study may be required in an area of 60 dBA CNEL or greater. Any land use that is exposed to levels higher than 65 dBA CNEL will require noise attenuation measures.
- Noise Element Policy N.1.4. Determine if existing land uses will present noise compatibility issues with the Proposed Project by undertaking site surveys.
- Noise Element Policy N.1.5. Prevent and mitigate the adverse impacts of excessive noise exposure on the residents, employees, visitors, and noise-sensitive uses of Riverside County.
- Noise Element Policy N.1.8. Limit the maximum permitted noise levels that cross property lines and impact adjacent land uses, except when dealing with noise emissions from wind turbines.
- Noise Element Policy N.3.6. Discourage projects that are incapable of successfully mitigating excessive noise.
- Noise Element Policy N.12.1. Minimize the impacts of construction noise on adjacent uses within acceptable practices.
- Noise Element Policy N.12.2. Ensure that construction activities are regulated to establish hours of operation in order to prevent and/or mitigate the generation of excessive or adverse noise impacts on surrounding areas.
- Noise Element Policy N.12.4. Require that all construction equipment utilizes noise reduction features (e.g., mufflers and engine shrouds) that are no less effective than those originally installed by the manufacturer.
- Circulation Element Policy C.3.28. Reduce transportation noise through proper roadway design and coordination of truck and vehicle routing.

Riverside County Municipal Code. The Riverside County Municipal Code Chapter 9.52 (Noise Ordinance 847 § 2, 2006) specifies sound level standards by land use type. Per Article 9.52.020 (Exemptions), noise from construction within one-quarter of a mile of an occupied residence is exempt from these standards if it occurs between the hours of 6:00 a.m. and 6:00 p.m. (June through September) or between the hours of 7:00 a.m. and 6:00 p.m. (October through May).

City of Corona Municipal Code. The City of Corona Municipal Code provides exterior/interior noise standards and specific noise restrictions, exemptions, and variances for exterior point and stationary noise sources (City of Corona, 2012). Those requirements applicable to the proposed project are identified below.

Section 17.84.040 (c) – Noise Standards. The noise ordinance provides noise standards for two separate types of noise sources: mobile and stationary. The noise standards for stationary noise sources are identified in Table 4.8-1.

¹ Community Noise Equivalent Level (CNEL) measurements are a weighted average of sound levels gathered throughout a 24-hour period.

Table 4.8-1 City of Corona Municipal Code Allowable Noise Levels

Land Use	Maximum Allowable Noise Levels L ₅₀ (1-hour) dBA
Single, Double, and Multi-Family Residential	Exterior Noise Level not to exceed 55 dBA from 7am to 10pm and 50 dBA from 10pm to 7am
Other Sensitive Land Uses	Exterior Noise Level not to exceed 55 dBA from 7am to 10pm and 50 dBA from 10pm to 7am
Commercial Uses	Exterior Noise Level not to exceed 65 dBA from 7am to 10pm and 60 dBA from 10pm to 7am
Industrial, Manufacturing, or Agricultural Uses	Exterior Noise Level not to exceed 75 dBA from 7am to 10pm and 70 dBA from 10pm to 7am

5 Notes: L₅₀: The noise level exceeded during 'n' percent of the measurement period (1-hour), where 'n' is 50 percent.

6 Source: City of Corona, 2017

Section 17.84.040 (d) – Special Provision. Construction noise is prohibited between the hours of 8:00 P.M. to 7:00 A.M., Monday through Saturday; and 6:00 P.M. to 10:00 A.M. on Sundays and federal holidays.

4.8.2 Proposed Action

Construction

As discussed in Section 2.0 (Proposed Action and Alternatives), construction of the Proposed Action is scheduled to commence in September 2018 and last approximately 24 months, ending in September 2020. It is possible that the Proposed Action would be built in stages, with multiple start dates and construction periods for various sections of the project depending on land acquisition schedule, environmental windows and weather delays. Construction phasing may result in an extension of the overall project duration beyond September 2020. Construction of the Proposed Action will require approximately 150 combined maximum daily haul trips for fill material which will be hauled from a borrow site located 2.5 miles west of the Alcoa Dike site (refer to Figure 1-2) and for rip rap from a local quarry. Construction vehicles would access the site from Butterfield Drive, Rincon Street, Auburndale Street, Smith Avenue, and Lincoln Avenue. These trips would result in only short-term periodic increases in noise levels during normal construction hours and would not travel through any residential neighborhood locations north of the site where sensitive receptors are located. However, as long as construction activities occur during 7:00 a.m. to 6:00 p.m., Monday through Saturday, which are the exempted time periods per County of Riverside Municipal Code and City of Corona Municipal Code, the proposed construction would be in compliance with local (city and county) noise ordinances; any changes to that schedule, including occasional overtime work, would require obtaining a variance from local authorities. Therefore, less than significant impacts would occur from construction equipment noise generated during construction of the Proposed Action.

Noise levels for typical pieces of construction equipment (at 50 feet) are listed in Table 4.8-2.

Table 4.8-2 Typical Noise Levels for Construction Equipment

Equipment	dBA at 50 Feet
Backhoes	80
Shovel	82
Compactors	82
Concrete Pumps, Mixers, Batch Plants	82-85
Cranes (movable)	83
Dozers	85

Table 4.8-2 Typical Noise Levels for Construction Equipment

Equipment	dBA at 50 Feet
Front End Loader	75-96
Graders, Scrapers	85-89
Trucks	88
Jack Hammer	88
Rock Drills	98
Pile Driver (Impact)	101

Source: FHWA Construction Noise Handbook, 2006

Noise from construction equipment attenuates over distance because of spreading losses, absorption of the intervening terrain, and reflection off any intervening walls or berms. Spreading losses account for an attenuation factor of 6 dBA per doubling of distance. For “line-of-sight” noise in the absence of any intervening terrain, an estimated average peak 92 dBA level is projected at 15 m (50 ft) would be reduced to 86 dBA at 30 m (100 ft), 80 dBA at 60 m (200 ft), 74 dBA at 120 m (400 ft), etc. is utilized for evaluating stationary construction noise associated with Alcoa Dike construction.

Riverside County General Plan. Because construction equipment use typically does not result in long-term steady noise generation, with typical generation occurring short-term throughout the workday, these activities would not permanently exceed the 65 dBA L_{eq} (weighted average acoustic energy content of noise) threshold established for residential exterior areas from 7 am to 10 pm in the County of Riverside General Plan.

Riverside County Municipal Code. Construction hours would be 7:00 a.m. to 6:00 p.m., Monday through Saturday. The Riverside County Municipal Code Section 9.52 (Noise Ordinance 847 § 2, 2006) specifies sound level standards by land use type. Noise from construction within one-quarter of a mile of an occupied residence is exempt from these standards if it occurs between the hours of 6:00 a.m. and 6:00 p.m. (June through September) or between the hours of 7:00 a.m. and 7:00 p.m. (October through May). Therefore, construction would be in compliance with Riverside County noise regulations, and construction equipment noise impacts during construction of the Proposed Action are considered less than significant; any changes to that schedule, including occasional overtime work, would require obtaining a variance from Riverside County.

City of Corona Municipal Code. The nearest sensitive receptor to the Proposed Action site would be approximately 600 feet north of the staging area (refer to Figure 2-2). Thus, unobstructed construction noise from Alcoa Dike construction equipment is expected to exceed the 55 dBA $L_{50 (1-hour)}$ threshold established for residences and sensitive receptors in the City of Corona Municipal Code (refer to Table 3.8-3). Additionally, on-site stationary construction activities would be approximately 50 feet from the nearest industrial receptor. Therefore, the nearest industrial receptor is expected to experience noise levels exceeding the 65 dBA $L_{50 (1-hour)}$ threshold established for commercial and industrial receptors in the City of Corona Municipal Code (refer to Table 3.8-3). However, construction hours would be 7:00 a.m. to 6:00 p.m., Monday through Saturday, consistent with construction exemption of City of Corona Municipal Code regulations; any changes to that schedule, including occasional overtime work, would require obtaining a variance from City of Corona. Therefore, construction equipment noise impacts during construction of the Proposed Action are considered less than significant.

Future Maintenance

Maintenance of the Proposed Action would be required to ensure that the embankment protection remains functional and to inspect the dike structure after each major storm. Any damage may require immediate

repair. Maintenance operations and repairs would require temporary access to and within the Alcoa Dike and may involve on-site activities that generate noise. Routine and special inspection and patrol with pickup trucks and sport utility vehicles weekly to daily during the flood season, and weekly to monthly during the non-flood season would occur. Additionally, mobilizing dump trucks to haul stones and use of hydraulic excavators to place stones to protect and reinforce the constructed embankment as necessary during flood fight activities are part of routine operation and maintenance. Similar to construction of the Proposed Action, these activities could result in temporary short-term periodic noise from construction equipment use. Duration of these activities would be 7:00 a.m. to 6:00 p.m., Monday through Saturday. Due to the short-term nature of maintenance and repair activities, and due to construction activities being exempt if conducted within the indicated time periods, any noise generated is may exceed the threshold but would not be significant for sensitive receptors in the County of Riverside General Plan.

4.8.3 Previously Approved Design Alternative

Construction

Construction of the Previously Approved Design Alternative is assumed to require the same or similar daily haul trips for fill material to that of the Proposed Action. Therefore, the analysis of construction noise would be similar or identical to that provided above for the Proposed Action. With construction occurring within the exempted daily hours of 7:00 a.m. to 6:00 p.m. Monday through Saturday, construction equipment noise impacts of the Previously Approved Design Alternative are considered less than significant.

4.9 SOCIOECONOMICS

4.9.1 Introduction

The significance of population and expenditure impacts are assessed in terms of their direct effect on the local economy and related effect on other socioeconomic resources (e.g., housing). The Proposed Action is similar to the previously approved design alternative and associated sponsor real estate actions except for the changes identified in Table 2.2-1. Therefore, a new impact would only occur if it is associated with the project modifications, or as a result of a changed environmental condition. Impacts would be significant if the Proposed Action would cause one or more of the following conditions to occur:

- result in substantial shifts in population trends or adversely affect regional spending and earning patterns.

4.9.2 Proposed Action

Construction of the Alcoa Dike under the Proposed Action would be short-term and would not attract a long-term worker population to the project area. The majority of the construction-related jobs are expected to be filled by both currently employed and unemployed labor force participants from the surrounding area, and construction of the proposed project would not increase the region's population. Implementation of the Proposed Action would neither place a demand on employment opportunities or housing, nor would it create significant new employment opportunities or housing in the region. In addition, minority or low-income communities would not be disproportionately affected by implementation of the proposed project. In addition, local populations would directly benefit from construction of the Alcoa Dike through the provision of flood protection. The Proposed Action would have no adverse impact to socioeconomics.

Future Maintenance. The routine inspections and minor repairs of the Alcoa Dike and associated features included under future maintenance activities would not have the potential to result in substantial shifts in population trends; adversely affect regional spending and earning patterns; or introduce overwhelming demand for public services or utilities. Therefore, no socioeconomic impacts would occur as a result of future maintenance.

4.9.3 Previously Approved Design Alternative

Under the Previously Approved Design Alternative, project modifications included under the Proposed Action would not be implemented and the Alcoa Dike would be constructed as previously approved. Socioeconomic impacts would be the same as described in the 2001 Final SEIS/EIR. Per Appendix O (Environmental Justice) of the 2001 Final SEIS/EIR, no disproportionately high and adverse effects to minority or low-income populations would be caused by the project because: (1) all impacts with the potential to significantly affect local populations have been mitigated to less-than-significant levels; (2) all adverse impacts potentially affecting local populations would be temporary; (3) local populations would directly benefit from the project through reduction in flooding and erosion hazards; and (4) the regional SARP, of which the proposed improvements are a part, would protect the large downstream population, including substantial minority and low-income populations, from flood hazards.

4.10 TRANSPORTATION

The Proposed Action is similar to the previously approved design alternative and associated sponsor real estate actions except for the changes identified in Table 2.2-1. Therefore, a new impact would only occur if it is associated with the project modifications, or as a result of a changed environmental condition. Impacts would be significant if the Proposed Action would cause one or more of the following conditions to occur:

- Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections).
- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses.

4.10.1 Applicable Regulations

California Department of Transportation

Caltrans has jurisdiction over State highways and sets maximum load limits for trucks and safety requirements for oversized vehicles that operate on highways. The following Caltrans regulations apply to potential transportation and traffic impacts of the proposed project:

- **California Vehicle Code (CVC), division 15, chapters 1 through 5 (Size, Weight, and Load).** Includes regulations pertaining to licensing, size, weight, and load of vehicles operated on highways.
- **California Street and Highway Code §§660-711, 670-695.** Requires permits from Caltrans for any roadway encroachment during truck transportation and delivery, includes regulations for the care and protection of State and county highways and provisions for the issuance of written permits, and requires permits for any load that exceeds Caltrans weight, length, or width standards for public roadways.

Riverside County General Plan. The 2016 Riverside County General Plan Circulation Element includes the following applicable policies:

- Policy C.2.1. Maintain the following countywide target Levels of Service: LOS C along all County maintained roads, and to all development proposals in any area of the county not located within the boundaries of an Area Plan, and to several other specifically identified Area Plans (REMAP, Eastern Coachella Valley, Desert Center, Palo Verde Valley, and those non- Community Development areas of the Elsinore, Lake Mathews/Woodcrest, Mead Valley and Temescal Canyon Area Plans); LOS D to all development proposals located in other identified Area Plans (Eastvale, Jurupa, Highgrove, Reche Canyon/Badlands, Lakeview/Nuevo, Sun City/Meniffee Valley, Harvest Valley/Winchester, Southwest Area, The Pass, San Jacinto Valley, Western Coachella Valley and those Community Development Areas of the Elsinore, Lake Mathews/Woodcrest, Mead Valley and Temescal Canyon Area Plans); LOS E may be allowed by the Board of Supervisors within designated areas where transitoriented development and walkable communities are proposed.

4.10.2 Proposed Action

Traffic Increase

Construction Traffic. The Proposed Action would result in temporary, short-term increases in local traffic as a result of construction-related vehicle trips. Specifically, construction of the Proposed Action will require approximately 150 combined maximum daily haul trips for fill material which will be hauled from a borrow site located 2.5 miles west of the Alcoa Dike site (refer to Figure 1-2) and for rip rap material from a local quarry. Construction vehicles would access the site from Butterfield Drive, Rincon Street, Auburndale Street, Smith Avenue, and Lincoln Avenue.

Based on the above, it is assumed construction-related traffic would be dispersed amongst SR-91 and I-15 for regional access to the Proposed Action area, and Lincoln Avenue, Butterfield Drive, Rincon Street, Auburndale Street, and Smith Avenue for site access. Therefore, these roadways would likely experience the majority of Proposed Action related traffic. Table 3.10-1 shows the most recently published annual average daily traffic (AADT) volumes on the segments of these roadways nearest the Proposed Action site. Given the high volume of existing traffic on these roadways (as shown in Table 3.10-1), the anticipated maximum construction related traffic of approximately 150 daily trips would account for a minimal increase of existing average daily traffic volumes along utilized roadways. This short-term increase in daily traffic volumes is considered unlikely to exceed the capacity of these roadways or exceed any applicable Riverside County General Plan performance standard (refer to Section 3.10-1). Therefore, temporary construction related traffic impacts to the existing traffic load and capacity of the utilized roadway system would be less than significant.

Maintenance Traffic. As discussed in Section 2.0 (Proposed Action and Alternatives), routine and special inspection and patrol with pickup trucks and sport utility vehicles weekly to daily during the flood season, and weekly to monthly during the non-flood season would occur. Additionally, mobilizing dump trucks to haul stones and use of hydraulic excavators to place stones to protect and reinforce the constructed embankment as necessary during flood fight activities are part of routine operation and maintenance. Based on these likely maintenance activities, it is assumed operation would result in approximately 150 vehicle trips monthly, likely resulting in more trips during the winter months and less in summer. Similar to construction traffic, these trips would be dispersed amongst I-15 and SR-91 for regional access, and utilize Lincoln Avenue, Butterfield Drive, Rincon Street, Auburndale Street, and Smith Avenue to access the Alcoa Dike site. As that total number of maintenance related trips is per month, this permanent increase in traffic would account for a negligible increase to average daily trips along utilized roadways

(per traffic volumes shown in Table 3.10-1). No impacts to roadway capacity would occur from Proposed Action maintenance related traffic.

Roadway Hazards

During construction, the primary staging area for the Proposed Action would be located in the northeast portion of the site off Lincoln Avenue immediately to the north of Rincon Street, approximately 600 feet south of the nearest residential receptor (refer to Figure 2-2). In the event any oversized loads would occur during construction on public roadways, they must comply with Caltrans regulations regarding oversized load limits and permits (refer to Section 3.10.1). Additionally, all site access points will be clearly designated and would likely have controlled entrance, thus eliminating roadway hazards. Therefore, less than significant safety impacts would occur to local roadways during construction. As discussed above, maintenance related traffic would account for a negligible increase of daily trips along utilized roadways (per traffic volumes shown in Table 3.10-1). It is also assumed that once the Proposed Action is operational, site access would be gate controlled. No impacts to roadway hazards would occur from Proposed Action maintenance related traffic.

4.10.3 Previously Approved Design Alternative

Traffic Increase

Construction Traffic. Construction of the Previously Approved Design Alternative is assumed to require the same or similar daily construction related trips to that of the Proposed Action. Therefore, the analysis of construction related traffic generation would be similar or identical to that provided above for the Proposed Action. Less than significant impacts would occur from construction vehicle trips of the Previously Approved Design Alternative.

Maintenance Traffic. Operational and maintenance of the Previously Approved Design Alternative is assumed to require the same or similar monthly trips to that of the Proposed Action. Therefore, the analysis of operational related traffic generation would be similar or identical to that provided above for the Proposed Action. Less than significant impacts would occur from maintenance vehicle trips of the Previously Approved Design Alternative.

Roadway Hazards

Both construction and operation of the Previously Approved Design Alternative is assumed to require the same or similar daily trips and site access control features to that of the Proposed Action. Therefore, the analysis of construction and operational related traffic hazards would be similar or identical to that provided above for the Proposed Action. No traffic safety hazards impacts would occur from construction and operation of the Previously Approved Design Alternative.

4.11 SAFETY AND HAZARDS

4.11.1 Introduction

The Proposed Action is similar to the previously approved design alternative and associated sponsor real estate actions except for the changes identified in Table 2.2-1. Therefore, a new impact would only occur if it is associated with the project modifications, or as a result of a changed environmental condition.

Impacts would be significant if the Proposed Action would cause one or more of the following conditions to occur:

- Create a potential public health hazard involving the use, production, or disposal of materials which pose a hazard to people or animal or plant populations in the area affected; or
- 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.

4.11.2 Proposed Action

The proposed project activities would not require long-term storage, treatment, disposal, or transport of substantial quantities of hazardous materials. However, small quantities of hazardous materials would be stored, used, and handled during the proposed project activities, including petroleum hydrocarbons and their derivatives (e.g., diesel, gasoline, oils, lubricants, and solvents) to operate the construction equipment. These materials would be contained within vessels engineered for safe storage. Storage of substantial quantities of these materials along the dike is not anticipated. Furthermore, construction vehicles may require on-site fueling, or routine or emergency maintenance that could result in the release of oil, diesel fuel, transmission fluid or other materials; however, the materials would not be used in quantities or stored in a manner that would pose a significant hazard to the public or the workers themselves. Therefore, impacts from general construction activities would be less than significant. The potential for an accidental release of toxic materials from construction vehicles (e.g., oil and diesel fuel) would be mitigated by the fueling and servicing of construction vehicles in protected areas so that fluids would be contained within an isolated or impervious area a safe distance from the active flow path. Spills or leaks would be cleaned up immediately, and any contaminated soil would be disposed of properly.

As standard Corps practice to alleviate fire hazards, a water truck is always present during construction activities. In addition, Corps construction projects must comply with the fire prevention and protection practices set forth in the Corps' Safety and Health Requirements Manual (EM 385-1-1). The provisions of EM 385-1-1 are incorporated into all Corps construction specifications, and the contractor is required to prepare a fire prevention and protection plan for the construction project.

Impacts on safety and hazards through the implementation of the proposed project would be considered beneficial. The dike construction would offer protection to adjacent public and private development in the area from the increased flows that are expected from Prado Dam.

Future Maintenance. Future maintenance of the proposed project would include routine inspections and minor repairs, of the Alcoa Dike embankment and its associated features after construction is completed (see Section 2.5 for a detailed list of future maintenance activities). These activities would not create impacts to public safety.

4.11.3 Previously Approved Design Alternative

Under the Previously Approved Design Alternative, the design modifications included under the Proposed Action would not be implemented, and the Alcoa Dike embankment would be constructed as previously approved. Impacts on safety and hazards through the implementation of this alternative would be similar to that of the Proposed Action, and no impacts to public safety would occur.

4.12 CULTURAL RESOURCES

4.12.1 Introduction

Under NEPA, significance is determined based on ‘context’ and ‘intensity’. For cultural resources, context is often viewed in terms of how important the resource may or may not be, while intensity is viewed in terms of the severity of the impacts to the resource. While cultural resources that are not eligible for the NRHP are still considered as part of the NEPA review, once that resource fails to meet the criteria for eligibility for inclusion on the NRHP its ‘context’ is found to be lacking. The phrase “adverse effect” (used in the NHPA) and “significant impact” (used in NEPA) are not equivalent terms but are similar in concept. Under the NHPA, impacts to cultural resources are typically examined in terms of how the project would affect the characteristics that make the property eligible for the National Register. Such impacts are referred to as adverse effects in the NHPA’s implementing regulations (36 CFR 800.5).

The Proposed Action is similar to the previously approved design alternative and associated sponsor real estate actions except for the changes identified in Table 2.2-1. Therefore, a new impact would only occur if it is associated with the project modifications, or as a result of a changed environmental condition. Impacts would be significant if the Proposed Action would cause one or more of the following conditions to occur:

- The undertaking would result in a substantial adverse effect to a historic property such that the implementation of the alternative would result in the destruction of a historic property or the loss of a property’s eligibility.

4.12.2 Proposed Action

As previously discussed in chapter 3, seven (7) cultural have been recorded within the boundaries of, or immediately adjacent to, the borrow area. Six (6) of these sites are historic era archaeological resources and include remnants of the town of Prado/Rincon and both late nineteenth century and early twentieth century farms. Four (4) of these sites have been determined to be eligible for the NRHP (CA-RIV-3698, 1039, 1044, 2802). The Corps determined that the two remaining sites were ineligible for the NRHP in 1995. One of these sites, CA-RIV-5523, has already been entirely removed as part of the use of the borrow area for other nearby embankment construction projects. The final site, known, as CA-RIV-3372, is the historic Rincon cemetery. The cemetery is not considered eligible for the NRHP. In general, cemeteries are excluded from eligibility as a criteria consideration (36 C.F.R. 60.4). The cemetery has been fenced off and is not in direct impact corridor of the borrow area or the levee alignment.

The proposed borrow area was first identified in the 1980’s as a material source as part of the analysis for the larger SARM project. In anticipation of the borrow area being utilized the feature was extensively investigated for cultural resources. This body of work includes historical and archaeological investigations of the Prado/Rincon town site CA-RIV-3698 (Greenwood et al. 1987); test excavations at CA-RIV-2802 and CA-RIV-3698 (Greenwood and Foster 1987); data recovery at CA-RIV-2802 and 28 features within CA-RIV-3698 (Foster et al. 1995); the testing of 11 historical period sites within the Basin including CA-RIV-1039 and CA-RIV-1044 (Foster et al. 1996); and finally large scale data recovery at CA-RIV-1039 and CA-RIV-1044 (Stern 2004).

Following data recovery in 2004, the borrow area was used as a material source area for other embankment construction projects within the basin. The current project would involve expanding the use and previously used boundaries of the borrow location by removing roughly an additional 480,000 cy. The ineligible site CA-RIV-5523 has already been excavated out for previous levee construction projects

and no longer exists. The currently proposed borrow site configuration would remove CA-RIV-5524, CA-RIV-1039 and most of CA-RIV-2802. CA-RIV-5524, Metherell Ranch, is not eligible for the National Register under any criteria.

Site CA-RIV-2802, an early era adobe structure, was first noted by Langenwaller and Brock (1985). They estimated its location from a railway survey map dating to 1887 and confirmed its presence with the recovery of contemporaneous artifacts; however, they did not locate a foundation. In the winter of 1987, a total of 34 shovel test pits, eight trenches, and seven excavation units were placed at the site in order to better categorize the site and assist the Corps in making a determination of eligibility. The 1987 fieldwork confirmed the presence of stone foundations for an adobe structure and the presence of a trash deposit within a former water channel. In 1992, the Corps contracted with Greenwood and Associates to complete data recovery at the site as mitigation for increased water levels at the site. This data recovery was conducted in October 1993 and consisted of seven shovel test pits, 13 hand exposures, and 23 excavation units. The site was not in the borrow area analyzed as part of the 2001 SEIS/EIR. To date, no consultation has occurred with the California State Historic Preservation Office (SHPO) regarding effects to CA-RIV-2802 associated with the borrow area. If the borrow area is not modified to exclude CA-RIV-2802, additional consultation would need to occur with the SHPO and additional data recovery may be needed prior to the commencement of construction. Construction plans are currently being reviewed to determine if the site can be avoided. Due to the large size of the borrow site and the location of this resource, avoidance is considered likely.

Site CA-RIV-1039 was determined to be eligible for the NRHP in 1996. In 1995, Greenwood and Associates conducted an extensive surface collection and subsurface testing of the resource. The testing program included the excavation of 26 trenches, one unit, and two surface exposures. Twenty separate features were identified including trash deposits, a privy pit, various structural remains, and two brick pottery kilns (Foster et al. 1996). In 1998, the Corps consulted with the California SHPO regarding the necessity of data recovery at both CA-RIV-1039 and CA-RIV-1044 in anticipation of the SARM project borrow area. Data recovery at CA-RIV-1039 included 19 mechanical stripping units, 26 backhoe trenches and 38 excavation units were excavated at the site. A similar level of effort occurred at CA-RIV-1044.

In consultation with the SHPO, both CA-RIV-1039 and CA-RIV-1044 were fully mitigated prior to the use of the borrow area; however, the current proposed boundaries would completely avoid CA-RIV-1044. The proposed project would also avoid directly impacting the NRHP eligible site CA-RIV-3698. An archaeologist meeting the Secretary of Interior's qualifications would monitor any ground disturbing activities near CA-RIV-3698 to ensure it is avoided. Direct impacts to the Prado/Rincon cemetery, CA-RIV-3372, would also be avoided.

In the 2001 SEIS/EIR, the destruction of NRHP eligible sites, CA-RIV-1039 and CA-RIV-1044 were identified as significant adverse impacts under NEPA. Under the current project configuration, the impacts would still be significant since the project would be impacting CA-RIV-1039 and CA-RIV-2802. As currently proposed, the borrow area would require additional consultation with the SHPO and may require additional data recovery efforts, unless impacts to CA-RIV-2802 are avoided.

Future Maintenance. Minor repairs may include, but are not limited to, inspections via access roads, measures necessary to preserve the integrity of the dike such as small mammal burrow control and removal of potentially detrimental vegetation. Passive methods such as filling in burrows and repairing holes in the grouted stone structure would be used whenever possible. These activities would not create impacts to cultural resources.

4.12.3 Previously Approved Design Alternative

Under Previously Approved Design Alternative, project modifications included under the Proposed Action would not be implemented and the Alcoa DiKE would be constructed as previously approved. Cultural Resources impacts would be significantly adverse as described in the 2001 Final SEIS/EIR. Sites CA-RIV-1039 and CA-RIV-1044 have previously been mitigated and no additional coordination or consultation with the SHPO would be required under this alternative.

4.13 PUBLIC SERVICES AND UTILITIES

4.13.1 Introduction

The Proposed Action is similar to the previously approved design alternative and associated sponsor real estate actions except for the changes identified in Table 2.2-1. Therefore, a new impact would only occur if it is associated with the project modifications, or as a result of a changed environmental condition. Impacts would be significant if the Proposed Action would cause one or more of the following conditions to occur:

- Occur if existing utility systems would be adversely affected by the proposed embankment construction activities.
- Occur if there is any unplanned disruption of utility service or physical impact to existing utility lines.
- Occur if there is an increase to the size of the population and geographic area served, the number and type of calls for service, physical development, or an increase in demand for service that could result in capacity constraints to existing public service and utilities providers.

4.13.2 Proposed Action

Public Services. Proposed modifications to the design of the Alcoa DiKE Project would not substantially change any public service impacts compared to the original design described in the 2001 Final SEIS/SEIR. Construction activities would result in an increase in the potential of fire hazards and could increase the need for police service due to accidents caused by construction personnel or equipment. The presence of construction equipment (vehicles, generators, tools, etc.) may increase the likelihood of a fire. Vegetation present in or near the construction areas could be ignited by a spark or heat-related incident due to the operation of construction equipment or construction activities. In addition, the presence of construction personnel increases the potential for fires through the increase of human influenced ignition (i.e., smoking, use of flammables, etc.). Therefore, construction of the proposed project could have the potential to result in a temporary increase in police and fire service calls. However, this increase would be short term and would not result in a significant permanent demand on fire or police facilities serving the proposed project area. In addition, implementation of the Alcoa DiKE Project would not affect the long term capacities of fire or police services. This potential increase in risk is considered short-term and temporary, only occurring during the limited construction phase of the proposed project.

Because of the large available labor pool in Riverside County and nearby areas, few construction workers are expected to temporarily relocate to the area and no new workers would be required for operation and maintenance of the dike. Therefore, neither construction nor operation of the proposed project is expected to result in an increase in the local population, leading to long-term demands to local public services. Because no new operational employees would be needed, operation and maintenance of the embankment would not generate any additional population that could exceed the capacity of local public service providers. Therefore, the proposed project would not increase any demands on schools or lower the level

of service for fire protection or police protection in the long term. There would be no operational impacts to existing schools, fire, or police department service capabilities. The proposed project is not expected to result in any long-term hazards that would place increased demands on emergency service providers.

Water. Alteration of the design of the Alcoa Dike Project would not substantially change any water supply impacts compared to the original design described in the Final 2001 SEIS/EIR. Water would be required during project construction for dust abatement and cleaning of construction equipment. The amount of water required depends on the length of access roads, weather conditions, road surface conditions, and other site-specific conditions. Non-potable water would be used for dust control when available. Water use would also include water necessary to make the soil cement used during project construction as well as for any revegetation activities. However, water use for the proposed project would not change the ability of the City of Corona in serving the proposed project area demands.

Wastewater. Alteration of the design of the Alcoa Dike Project would not substantially change any wastewater impacts compared to the original design described in the 2001 Final SEIS/EIR. Wastewater generated during the proposed project construction would be limited to that generated by project personnel and would be accommodated by portable toilets brought to staging areas for construction crews. These portable toilets would be emptied into septic tanks or municipal sewage systems. Because this increase would be short-term and temporary, wastewater generated during project construction is not expected to significantly impact the capacity of the City of Corona in providing wastewater services to the project area.

Solid Waste. Alteration of the design of the Alcoa Dike Project would not substantially change any solid waste impacts compared to the original design described in the 2001 Final SEIS/EIR. Organic materials, trees, shrubs, and abandoned timber structures, would be disposed of by hauling to a commercial site. Topsoil containing organic material would not be disposed of at a commercial site, but would be stockpiled and spread on embankment slopes or borrow areas as a part of site restoration. Disposal of these materials by burning or burying at the proposed project site would not be permitted. Inorganic materials would include, but are not limited to, broken concrete, rubble, asphaltic concrete, metal, and other types of construction materials. Where possible, soil from excavation would be screened and separated for use as backfill materials at the site of origin to the maximum extent possible. Spoils unsuitable for backfill use would be disposed of at appropriate disposal sites. As identified in 3.13-1, the project area is served by the El Sobrante Landfill. Because the exact amount of material recycling is unknown, the total amount of waste requiring landfill disposal is unknown. Recycling activities would greatly reduce the quantity of construction-related materials transported to local landfills. It is assumed that the amount of construction waste would be a small percentage of the maximum daily throughput for El Sobrante. Therefore, construction waste generated by the proposed project would not substantially affect the remaining capacities of local landfills to serve local demands.

Temporary Disruption. A number of utilities currently exist on the proposed project site and some will require protection or relocation (new locations are currently unknown) due to the proposed project. Table 3.13-2 lists the agencies and utilities located in the project area. These include:

- AT&T buried cable crossing from the southwest side of Smith Avenue to the northwest side of Rincon Street.
- A variety of City of Corona Department of Water and Power water, effluent, and sewer lines paralleling Butterfield Drive, Rincon Street, and Auburndale Avenue.
- Santa Ana Watershed Project Authority sewer pipes paralleling Butterfield Drive, Rincon Street, and Auburndale Avenue.

The Corps will coordinate with the appropriate jurisdictions prior to and during construction to ensure that only temporary disruptions occur to the services provided by the utilities mentioned above.

Future Operation and Maintenance. Periodic regular maintenance, as well as required maintenance following flood and scour events would require relatively small amounts of material and would typically occur for only short periods of time. Consequently, any increases in fire or police calls would similarly be temporary and not substantially alter the level of service of these providers. Demands on utilities during maintenance would also be temporary and relatively minor. As such, future maintenance is not expected to result in any significant impacts to public services and utilities.

4.13.3 Previously Approved Design Alternative

Under the Previously Approved Design Alternative, construction related impacts or temporary increases in public services or utilities demand would occur, similar to the proposed project. Potential impacts to public services, water, wastewater, and solid waste would be similar to the representative scenario provided above for the proposed project. Therefore, temporary construction public services and utilities impacts associated with the Previously Approved Design Alternative would not result in any significant impacts.

5. CUMULATIVE IMPACTS

5.1 INTRODUCTION

A cumulative impact is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time in the proposed activity area. Those actions could be undertaken by various agencies (federal, State, or local) or private entities. A discussion of cumulative impacts resulting from actions and projects that are proposed, under implementation, or reasonably anticipated to be implemented in the near future is required.

Cumulative environmental impacts are most likely to arise when a relationship exists between a proposed activity and other projects expected to occur in a similar location, time period, and/or involving similar actions. Projects in proximity to the proposed project activities would be expected to have more potential for a relationship that could result in potential cumulative impacts than those more geographically separated.

This cumulative impact discussion analyzes cumulative projects located within approximately five miles of the Alcoa Dike project area that could have the ability to combine with impacts from the Proposed Action.

Table 5.1-1 Cumulative Projects in the Proposed Project Activity Area

Project Name	General Location	Description
City of Corona Santa Ana River Trail	Southern end of Prado Basin (crosses through the proposed project area)	The 22-mile Santa Ana River Trail is divided into three sections: Lower, Middle, and Upper, and includes bicycle trails and hiking/equestrian trails. The Middle section consists of proposed trail alignments that would cross the Spillway Flood Plain, Auxiliary and Alcoa Dikes, Area between Auto Center Drive and the Wastewater Treatment Dike, Clearwater Drive, and Area Adjacent to Rincon Street. <i>Project is ongoing and will end after completion of all features in the Prado Dam construction, currently anticipated to be 2025.</i>
Santa Ana River Mainstem Reach 9 BNSF Bridge Pier Protection Project	Southwest of the proposed project	Protect the piers of the existing BNSF Railroad bridge over Santa Ana River from planned high flow releases of up to 30,000 cfs from Prado Dam reservoir. <i>Project construction has begun in 2017 and will last approximately 36 months.</i>
Auxiliary Dike Tie-In Project	Southwest of the proposed project	In Phase 1, the Auxiliary Dike and Floodwall were constructed to protect Highway 91 and the lives and properties (homes and businesses) of individuals residing in the project area from flooding hazards. This project (Phase 2) will connect the dike to the grade separated Auto Center Drive/Railroad Road. <i>Project anticipated to begin in 2018 and last approximately 12 months.</i>
Orange County Water District Prado Basin Sediment Management Project	Southwest of the proposed project	OCWD's proposed Sediment Management Demonstration Project includes removal of up to 120,000 cubic yards of sediment from the Prado Basin. The sediment would be processed and temporarily stored on Federal land within the basin (immediately adjacent to the Alcoa borrow site) and then either hauled to a landfill for permanent disposal or spread over the borrow site to assist with final grading and habitat restoration. <i>Project scheduled to begin in 2018-2019 and will last approximately 4 months.</i>
City of Corona Grade Separation Project	Southeast of the proposed project	McKinley Street, just south of Highway 91 in Corona, currently crosses the BNSF rail line. The City of Corona is developing plans to build a grade separation at McKinley Street and Sampson Avenue/BNSF Railroad crossing, which will allow vehicles to avoid having to cross railroad tracks. <i>Project in planning stages currently (no decision made as of November 28, 2017 City Council Meeting)</i>

The assessment below focuses on addressing the following: (1) the area(s) in which the effects of the Proposed Action would be felt; (2) the effects that are expected in the area(s) from the Proposed Action; (3) past, present, and reasonably foreseeable future actions that have or that are expected to have impacts in the same area; (4) the impacts or expected impacts from these other actions; (5) and the overall impact(s) that can be expected if the individual impacts are allowed to accumulate.

5.2 ANALYSIS OF CUMULATIVE IMPACTS

5.2.1 Air Quality

Construction activities for the Proposed Project would not have impacts above and beyond those determined in the 2001 Final SEIS/EIR, where cumulative impacts were determined to be significant in large part to the significant impacts of the overall Prado Basin dike projects. Mitigation measures identified in the 2001 Final SEIS/EIR, as presented in Chapter 6, would reduce impacts to the extent feasible. Therefore, the cumulative impact findings for the Proposed Project are the same as those determined in the 2001 Final SEIS/EIR.

Air Pollutants

Air pollutants emission impacts were not discussed in the 2001 Final SEIS/EIR. The Proposed Project impacts have been determined to be less than significant, as discussed in Section 4.1. The cumulative project would also be assumed to have less than significant air pollutants impacts due to minimal emissions and short project duration. Therefore, the cumulative air pollutants impacts are also considered to be less than significant.

Greenhouse Gases

Impacts related to GHG emissions and global climate change are inherently cumulative. As discussed in Section 4.1, the proposed project would have less than significant impact GHG emissions, either directly or indirectly on the environment. Based on the above, impacts would be less than significant.

5.2.2 Biological Resources

Implementation of the Proposed Action would not result in significant impacts to biological resources (See Section 4.2). The Proposed Action combined with other projects would not contribute to cumulative biological resource impacts within the region. The effects of the proposed project are site specific and localized and would not result in incremental cumulative impacts to biological resources through increased human encroachment (e.g., removal of habitat, degradation of habitat through trampling, increased noise, or decreased water quality). At the conclusion of construction, the Corps would restore or enhance habitat in the project area. Impacts of the Proposed Action would be reduced to less than significant levels and effects of this proposed project would not be considered cumulatively significant with mitigation.

5.2.3 Water Resources and Hydrology

The cumulative scenario relevant to the Proposed Action is largely characterized by other flood control projects in and downstream of the Prado Basin. As described in Section 4.3 (Water Resources and Hydrology) of this SEA, implementation of the Proposed Action would include full compliance with applicable laws and regulations, as well as Environmental Commitments identified in the 2001 SEIS/EIR. As such, potential impacts to water resources and hydrology would be site-specific and not substantial. Water resources and hydrology impacts of the Proposed Action would not combine with similar impacts

of other projects in the cumulative scenario. Furthermore, as described in Section 2.1 of this SEA, the Proposed Action would contribute to the national economic development (NED) objective of providing flood protection for the surrounding area. Other flood control projects in the cumulative scenario would also contribute to this NED objective, resulting in an overall benefit.

5.2.4 Earth Resources

No significant impacts to earth resources and geology would occur from implementation of the Proposed Action. As potential effects to soils and geology would be site-specific and less than significant, no contribution to cumulative impacts in the region would occur.

5.2.5 Land Use

Land use impacts tend to be localized, affecting properties in the immediate vicinity of the project. Potential land use impacts from the Proposed Action would affect existing recreational and light industrial land uses surrounding the project site. Similarly, the area potentially affected by cumulative land use impacts is the local vicinity of the proposed flood control features where construction and operation activities could affect nearby land uses.

As described in Section 4.5 and 4.7 (Land Use and Recreation, respectively), implementation of the Proposed Action would result in a ponding area replacing a baseball/softball field and a portion of parkland within Butterfield Park. However, the Proposed Action's contribution to cumulative land use and recreation impacts would be minimized with implementation of EC-LU-1. Although potential adverse land use impacts from construction and operation are localized, the land use benefits of the project, in terms of flood protection for populated areas, are regional in scope, benefiting developed areas in Orange, Riverside, and San Bernardino Counties.

5.2.6 Aesthetics

The activities associated with the proposed project would be short term, localized, and would not significantly impact or conflict with visual resources (see Section 4.6.2). Therefore, the proposed project would not contribute to a degradation or alteration of the scenic viewscape. As such, no cumulative aesthetics impacts would occur.

5.2.7 Recreation

As described in Section 4.7 (Recreation) of this SEA/EIR Addendum, implementation of the Proposed Action would result in a ponding area replacing a baseball/softball diamond and a portion of parkland within Butterfield Park, although as this area was planned for flood control purposes under the 2001 SEIS/EIR, this would not be considered a significant impact. The cumulative projects listed in Table 5.1-1 would not result in the elimination or replacement of recreation uses or facilities. The City of Corona Santa Ana River Trail, listed in Table 5.1-1, would improve and increase recreational opportunities in the Alcoa Dike Project area. With the implementation of environmental commitments for recreation described in Section 2.4.2 (Proposed Action) and Section 4.7 (Recreation), no contribution to cumulative impacts in the region would occur.

5.2.8 Noise

With regard to a cumulative increase in temporary noise levels of the Proposed Action construction in conjunction with construction of cumulative projects identified in Table 5.1-1, Proposed Action construction would temporarily increase ambient noise levels in the vicinity of the Proposed Action area. As discussed in

Section 3.0 (Affected Environment), the nearest sensitive receptors are located approximately 600 feet north of the site. Construction activities associated with other projects in close proximity to the Proposed Action (as identified in Table 5.1-1) could potentially occur at the same time as the Proposed Action and further increase noise levels at these sensitive receptor locations. However, due to the distances and construction timing of projects identified in Table 5.1-1, it is unlikely that construction noise from the proposed Alcoa Dike would combine with construction noise from those projects to increase potential cumulative construction noise impacts to sensitive receptors. In the event this occurred, these impacts would be temporary and of short duration. While mobile construction vehicles bringing construction supplies to cumulative project sites could share travel routes with the Proposed Action, it is assumed these shared routes would be limited to regional access roadways (I-15 and SR-91). Due to the traffic volumes on these roadways, no significant cumulative noise from mobile construction sources would occur to sensitive receptors along shared travel routes.

Each cumulative project identified in Table 5.1-1 would be required to comply with local noise ordinances. However, per discussion in Section 4.0 (Environmental Consequences), as long as construction activities occur during 7:00 a.m. to 6:00 p.m., Monday through Saturday, which are the exempted time periods per County of Riverside Municipal Code and City of Corona Municipal Code, the proposed construction projects would be in compliance with local (city and county) noise ordinances; any changes to that schedule, including occasional overtime work, would require obtaining a variance from local authorities. As a result, the Proposed Action would not result in significant construction or operational noise impact. Therefore, while overall development of the Alcoa Dike area could result in cumulative temporary and permanent increases to existing ambient noise levels, the Proposed Action would have a minimal cumulative contribution to these potential noise impacts. Therefore, noise impacts of the Proposed Action would not combine with impacts of present and reasonably foreseeable projects to result in a significant cumulative impact.

5.2.9 Socioeconomics

The Proposed Action would not create socioeconomic impacts to any adjacent communities in the region (see Section 4.9). As such, implementation of the Proposed Action would not contribute to an incremental socioeconomic effect that would be cumulatively considerable.

5.2.10 Transportation

Cumulative projects within the area (as identified in Table 5-1) will generate trips to and from the respective project sites using local roadways. The combined contribution of these vehicle trips could result in an increase to existing roadway network levels of service. However, each project identified in Table 5.1-1 would be required to comply with the performance standards identified in the Riverside County General Plan (Refer to Section 3.10-1). While development of cumulative projects identified in Table 5-1 will result in a cumulative addition to traffic volumes on study area roadways, the Proposed Action's contribution to this impact would be minimal during both construction and operation (refer to Section 4.10). Therefore, the contribution of the Proposed Action to cumulative impacts would be less than significant.

5.2.11 Safety and Hazards

As discussed in Section 4.11, the Proposed Action would not result in increased risks to public safety. The construction of the proposed project would be a beneficial impact. Therefore, safety risks associated with the proposed project would not result in a significant cumulative impact.

5.2.12 Cultural Resources

The Proposed action would result in the destruction of two archaeological sites that have been determined to be eligible for the NRHP under Criterion D. Both of these resources are important for the data that they contain. Therefore, the issue that must be explored in a cumulative analysis is the cumulative loss of data potential. Both sites have been or will be excavated and the results of these excavations have been or will be compiled and available for public and academic research. While the destruction of these sites have been determined to be a significant impact, the loss of these two sites would not significantly diminish the cumulative scientific and cultural value of such resources in the region.

It is expected that the proposed action in conjunction with ongoing and future actions would not contribute significantly to the loss of cultural values or data within the basin especially if the resources are effectively mitigated.

5.2.13 Public Services and Utilities

The Proposed Action would have no significant impacts on public services and utilities (See Section 4.13). As such, the proposed project would not contribute to an incremental impact on public services and utilities that would be cumulatively considerable.

6. ENVIRONMENTAL COMMITMENTS

6.1 ENVIRONMENTAL COMMITMENTS

The following environmental commitments have been incorporated into the proposed project for the purpose of minimizing environmental effects. Many of these commitments were included in the 2001 SEIS/EIR and other related documents. Updates and additional information are provided in brackets, and new commitments or measures that were developed subsequent to the 2001 SEIS/EIR are prefaced with “EC-“.

Air Quality

AQ-1 The project construction contractor shall retard diesel engine injection timing by two degrees before top center on all construction equipment that was manufactured before 1996, and which does not have an existing IC engine warranty with the manufacturer. The contractor shall provide a certification from a third-party certified mechanic prior to start of construction, stating the timing of all diesel-powered construction equipment engines have been retarded two degrees before top center.

AQ-2 The project construction contractor shall use high-pressure injectors on all diesel engines that were manufactured before 1996, and which do not have existing IC engine warranties with the manufacturer. The contractor shall provide documentation of warranty and manufacture date or a certification from a third-party certified mechanic stating that all diesel construction equipment engines are utilizing high-pressure fuel injectors.

AQ-3 The project construction contractor shall use Caterpillar pre-chamber diesel engines or equivalent, and perform proper maintenance and operation.

AQ-4 The project construction contractor shall electrify equipment, where feasible.

AQ-5 The project construction contractor shall restrict the idling of construction equipment to 10 minutes.

AQ-6 The project construction contractor shall ensure that equipment will be maintained in proper tune to prevent visible soot from reducing light transmission through the exhaust stack exit by more than 20 percent for more than 3 minutes per hour and use low-sulfur fuel as required by SCAQMD regulation.

AQ-7 The project construction contractor shall use catalytic converters on all gasoline equipment (except for small [2-cylinder] generator engines). If this measure is not implemented, emissions from gasoline equipment shall be offset by other means (*e.g.*, Emission Reduction Credits).

AQ-8 The project construction contractor shall cease construction during periods of high ambient ozone concentrations (*i.e.*, Stage 2 smog alerts) near the construction area (SCAQMD, 1993).

AQ-9 The project construction contractor shall schedule all material deliveries to the construction spread outside of peak traffic hours, and minimize other truck trips during peak traffic hours, or as approved by local jurisdictions.

AQ-10 The project construction contractor shall use only solar powered traffic signs (no gasoline-powered generators shall be used).

The following measures will be implemented to reduce construction emissions of PM10:

AQ-11 The project construction contractor shall apply non-toxic soil stabilizers according to manufacturers' specification to all inactive construction areas (previously graded areas inactive for 10 days or more; soil stock piled for 2 days or more).

AQ-12 The project construction contractor shall enclose, cover, water twice daily, or apply non-toxic soil binders according to manufacturers' specifications to exposed stock piles (i.e., gravel, sand, dirt) with 5 percent or greater silt content.

AQ-13 In areas where dewatering is not required, the project construction contractor shall water active grading/excavation sites at least twice daily.

AQ-14 The project construction contractor shall increase dust control watering when wind speeds exceed 15 miles per hour for a sustained period of greater than 10 minutes, as measured by an anemometer. The amount of additional watering would depend upon soil moisture content at the time; but no airborne dust should be visible.

AQ-15 The project construction contractor shall suspend all excavating and grading operations when wind speeds (as instantaneous gusts) exceed 25 mph (40 kph).

AQ-16 The project construction contractor shall ensure that trucks hauling dirt on public roads to and from the site are covered and maintain a 50 mm (2 in) differential between the maximum height of any hauled material and the top of the haul trailer. Haul truck drivers shall water the load prior to leaving the site to prevent soil loss during transport.

AQ-17 The project construction contractor shall ensure that graded surfaces used for off-road parking, materials lay-down, or awaiting future construction are stabilized for dust control, as needed.

AQ-18 The project construction contractor shall sweep streets in the project vicinity once a day if visible soil material is carried to adjacent streets.

AQ-19 The project construction contractor shall install wheel washers where vehicles enter and exit unpaved roads onto paved roads, or wash off trucks and any equipment leaving the site each trip.

AQ-20 The project construction contractor shall apply water three times daily, or apply non-toxic soil stabilizers according to manufacturers' specifications to all unpaved parking, staging areas, or unpaved road surfaces.

AQ-21 The project construction contractor shall ensure that traffic speeds on all unpaved roads to be reduced to 15 mph (25 kph) or less.

AQ-22 Prior to the approval of plans and specifications, the USACE shall ensure that plans and specifications specify that all heavy equipment shall be maintained in a proper state of tune as per the manufacturer's specifications.

Biological Resources

The 1988 GDM/SEIS included numerous environmental commitments and mitigation measures (Table 4-8 of the 2001 SEIS/EIR) that have already been implemented to compensate for impacts related to construction (or re-construction) of Prado Dam and associated features, including the Alcoa Dike. Several of these measures are summarized in the table 6-1 below:

**Table 6-1 Original Mitigation Commitment from 1988
Supplemental Environmental Impact Statement**

Resource	Impact	Mitigation
Least Bell's Vireo (LBV) habitat	30 acres of LBV habitat potentially converted to willow woodland without understory due to changes in operation schedule (increased inundation) and operation of haul roads	Restore 133 acres of degraded habitat above the 510-ft elevation line to willow woodland with understory. This measure was superseded by the 1995 Cooperative Agreement between OCWD, USFWS, and USACE wherein \$1 million was contributed to the SAR Conservation Trust Fund. Set aside \$450,000 for a monitoring program for the vireo and a management program for its pests.
Willow woodland	Loss of 23 acres of willow woodland without understory (non-vireo habitat) due to construction	
Proposed least Bell's vireo critical habitat	USFWS proposed that increased durations of inundation could potentially destroy all proposed LBV critical habitat below 500-ft elevation.	
Shrub land	Loss of 12 acres due to construction of Highway 71 dike	Reseed Borrow Site No.1 (up to 160 ac) with native shrub land species.
Oak woodland	Loss of 5 acres (84 trees) during construction of Highway 71 dike	Plant 336 trees on 5.17 acres south of Prado Regional Park (mitigation ratio of 4:1). This measure is no longer warranted due to Highway redesign which eliminated all impacts to existing oak woodlands.
Grassland	Loss of Canada Goose foraging habitat at Borrow Site No. 2	Excavation of Borrow Site No. 2 will take place in 3 phases. Completed phases will be recontoured and restored with suitable goose forage material, which will be planted during the season geese are present so that young shoots will always be available. Restoration will include recontouring, respreading salvaged topsoil, fertilization, and seeding with appropriate seedmix(es). Additionally, 60 acres will be enhanced for geese through mowing during years the borrow site is active.
Aquatic habitat	Minor impacts from Borrow Site No. 2 haul road adjacent to Chino Creek	None (impact not significant)
All biological resources	Noise impacts from construction	None (impact not significant)

The Corps also proposes to implement the following measures to further minimize and mitigate effects of the Project on biological resources. These are the measures from the 2001 SEIS/EIR that apply to the Alcoa Dike project area.

- BR-11** The construction contractor shall clear vegetation associated with Project construction only during periods when migratory birds are not nesting (15 September through 28 February).
- BR-12** Construction activities shall be monitored by the USACE biological monitor to assure that vegetation is removed only in the designated areas. All other areas including riparian areas not to be disturbed shall be flagged/stalked.
- BR-13** The construction contractor shall install a noise barrier prior to March 1 along the haul road/borrow areas east and southeast of the dam along the southwestern border of the Basin to shield nesting vireos and gnatcatcher from excessive noise generated by construction vehicles and equipment.
- BR-14** Prior to utilizing the borrow sites, the construction contractor shall ensure that existing sound walls between the borrow site and the willow riparian forest are in good condition

and are located in the right TCE of the project footprint to shield nesting vireos and other sensitive species from excessive noise generated by heavy equipment during construction., if relocation of the sound walls is necessary further north of the borrow that must be done in coordination with the USACE biological monitor.

BR-14A When construction is completed, the construction contractor shall hydroseed the downstream side of the completed dike and all temporarily disturbed upland areas, including borrow sites, with local native shrubs and groundcover. The mix of native species in the hydroseed shall be approved in advance by the Environmental Resources Branch of the USACE, Los Angeles District.

BR-14C The USACE shall mow all areas that will be excavated during spring/summer months, prior to March 15, to preclude nesting of and impacts to grasshopper sparrows and other species of concern.

The following environmental commitments are in addition to those described in the 1988 SEIS or 2001 SEIS/EIR.

EC-BR-1 Upon development of final construction plans and prior to site disturbance, the Corps shall clearly delineate the limits of construction on project plans. All construction, site disturbance, and vegetation removal shall be located within the delineated construction boundaries. The storage of equipment and materials, and temporary stockpiling of soil shall be located within designated areas only, and outside of natural habitat areas/channel. The limits of construction shall be delineated in the field with temporary construction fencing, staking, or flagging.

EC-BR-2 Prior to construction activities and throughout the construction period, a Corps qualified biologist (or the environmental monitor) shall continue to inspect the construction site and adjacent areas to determine if any raptors are nesting within 200 feet of the construction site. If active nests are found, the Corps biologist will coordinate with CDFW to determine appropriate avoidance or minimization measures.

EC-BR-3 Prior to any ground-disturbing activities (e.g. mechanized clearing or rough grading) for all project related construction activities, a Corps qualified biologist (or environmental monitor) shall conduct a pre-construction surveys of the project site for terrestrial special-status, including MSHCP covered, wildlife species. During these surveys the biologist will:

- Inspect the project area for any sensitive wildlife species;
- Ensure that potential habitats within the construction zone are not occupied by sensitive species (e.g., potential burrows/nests are inspected); and
- In the event of the discovery of a non-listed, special-status ground-dwelling animal, recover and relocate the animal to adjacent suitable habitat within the project site at least 200 feet from the limits of construction activities.

EC-BR-4 Prior to construction activities, a Corps qualified biologist (or the environmental monitor) shall conduct pre-construction environmental training for all construction crew members. The training shall focus on required mitigation measures and conditions of regulatory agency permits and approvals (if required). The training shall also include a summary of sensitive species and habitats potentially present within and adjacent to the project site.

EC-BR-5 The Corps' construction contractor will prepare a Spill Prevention and Contingency Plan. The Plan shall be implemented prior to and during site disturbance and construction activities. The plan will include measures to prevent or avoid an incidental leak or spill, including identification of materials necessary for containment and clean-up and contact information for management and agency staff. The plan and necessary containment and

clean-up materials shall be kept within the construction area during all construction activities. Workers shall be educated on measures included in the plan at the pre-construction meeting or prior to beginning work on the project.

EC-BR-6 The Corps biologist (or the environmental monitor) will monitor construction activities to ensure compliance with environmental commitments.

EC-BR-7 In compliance with the 2012 BO Amendment, the Corps will restore (through arundo and other non-native removal) one acre of riverine habitat for each acre of wetland/riparian habitat temporarily disturbed by the Alcoa Dike Project, and restore five acres for each acre of permanent impact to these vegetation communities. This will equate to 53.7 acres of off-site restoration, to compensate for temporary and permanent impacts to 32.5 acres of degraded wetland and riparian habitat types. *(The 1:1 mitigation requirement for temporary impacts assumes that the restored area will be actively maintained for the life of the project. The Corps also has the option of compensating for temporary impacts to riparian/wetland habitat by restoring three acres in an off-site location for each acre affected (3:1), and maintaining the restored area for a period of five years only. If the Corps selects this option, then 108.1 acres of habitat will be restored.)*

EC-BR-8 The construction contractor will be required to monitor noise when activities approach within 500 feet of riparian habitat during the nesting season. Ambient noise levels will be recorded prior to the nesting season, or prior to construction during that period. If construction noise levels exceed authorized limits (per the 2001 and 2012 BO), the Contractor shall construct or modify sound barriers, equipment, or procedures (including construction schedules) as necessary to meet these conditions to ensure that: (1) noise does not exceed 60 dBA within occupied vireo habitat; or, (2) noise does not exceed 5 dBA above ambient conditions if said levels are above 60 dBA.

EC-BR-9 The construction contractor must not allow water containing mud, silt or other Pollutants from grading, aggregate washing, or other activities to enter channel stream or be placed in locations that may be subjected to high storm flows.

EC-BR-10 To the maximum extent practicable, equipment, haul routes and staging areas will be located outside of the active channel/wash.

EC-BR-11 The construction contractor must avoid all impacts to the low-flow channel of Temescal Creek and restrict all construction-related access to outside of the channel whenever water is present.

Water Resources and Hydrology

EC-WR-1 Construction Stormwater Pollution Prevention Plan. A Construction Stormwater Pollution Prevention Plan (SWPPP) shall be developed for the project by the construction contractor, and filed with the Santa Ana Regional Water Quality Control Board (RWQCB) prior to construction. The SWPPP shall be stored at the construction site for reference or inspection review. Implementation of the SWPPP would help stabilize graded areas and waterways, and reduce erosion and sedimentation. The plan would designate BMPs that would be adhered to during construction activities. Erosion minimizing efforts such as straw wattles, water bars, covers, silt fences, and sensitive area access restrictions (for example, flagging) would be installed before clearing and grading begins. Mulching, seeding, or other suitable stabilization measures would be used to protect exposed areas during construction

activities. During construction activities, measures would be in place to ensure that contaminants are not discharged from the construction sites. The SWPPP would define areas where hazardous materials would be stored, where trash would be placed, where rolling equipment would be parked, fueled and serviced, and where construction materials such as reinforcing bars and structural steel members would be stored. Erosion control during grading of the construction sites and during subsequent construction would be in place and monitored as specified by the SWPPP. A silting basin(s) would be established, as necessary, to capture silt and other materials, which might otherwise be carried from the site by rainwater surface runoff.

EC-WR-2 Hazardous Materials Management Plan and Emergency Response Plan. A project-specific hazardous materials management and hazardous waste management plan would be developed prior to initiation of construction. The plan would identify types of hazardous materials to be used during construction and the types of wastes that would be generated. All project personnel would be provided with project-specific training to ensure that all hazardous materials and wastes are handled in a safe and environmentally sound manner. This plan shall include an emergency response program to ensure quick and safe cleanup of accidental spills.

EC-WR-3 Water quality permits. Prior to engaging in any soil-disturbing activities, the construction contractor shall document compliance with the Clean Water Act (CWA) Section 402 NPDES General Permit for Storm Water Discharges Associated with Construction Activities, and shall also receive any necessary permits for dewatering activities.

Land Use

EC-LU-1 Butterfield Park Construction and Maintenance Plan. Prior to commencement of construction within Butterfield Park, a Butterfield Park Construction and Maintenance Plan shall be prepared and submitted to the City of Corona's Parks and Community Services Department for review and approval. At a minimum, the plan shall include the following: the expected start date and duration of construction; a detailed description of the activities associated with construction; a detailed description of expected maintenance activities that will occur in the future, which shall include the frequency and duration of such activities, and the procedures for notifying the City prior to maintenance activities in order to avoid disruptions to the remaining recreation resources; and any additional information that would help minimize disruptions to the remaining recreation resources.

Noise

As long as construction activities occur during 7:00 a.m. to 6:00 p.m., Monday through Saturday, which are the exempted time periods per County of Riverside Municipal Code and City of Corona Municipal Code, no additional environmental commitments would be required. However, any changes to that schedule, including occasional overtime work, would require obtaining a variance from local authorities per the following additional environmental commitments, which would be incorporated into contract specifications for the proposed project to reduce potential impacts to noise.

EC-N-1 Prior to construction, the construction contractor shall obtain Riverside County approval (exemption or variance) per Riverside County Municipal Code Section 847, Section 7.(a).1 – Construction Related Exceptions, for all noise sources not exempt by Riverside County Municipal Code Section 847, Section 2.i. and exceeding Riverside County Municipal Code Section 847, Section 4 – General Sound Level Standards. Additionally, prior to any such activities occurring, the construction contractor shall obtain Riverside County approval

(exemption or variance) for all operational and maintenance activities not compliant with Riverside County Municipal Code Section 847.

- EC-N-2** Prior to construction, the construction contractor shall obtain a variance from the City of Corona for all construction activities not compliant with the performance standards identified within the City of Corona Municipal Code Section 17.84.040 (c) – Noise Standards. Additionally, prior to any such activities occurring, the project proponent shall obtain a variance from the City of Corona for all operational and maintenance activities not compliant with City of Corona Municipal Code Section 17.84.040 (c) – Noise Standards.

Cultural Resources

- CR-1** The Corps shall ensure that ground disturbing activities that have the potential to impact historic properties is monitored by archaeologists meeting the Secretary of the Interior's Standards. Any finds shall be documented in accordance with the Programmatic Agreement.
- CR-2** If previously unknown cultural resources are found during construction of any feature of the Santa Ana River Project, construction in the area of the find shall cease until the requirements in 36 CFR 800.13, are met. This would include coordination with the California State Historic Preservation Officer, the Advisory Council on Historic Preservation, and appropriate Native American groups and/or other interested parties. It may require additional measures such as test and data recovery excavations, archival research, avoidance measures, etc.

7. COMPLIANCE WITH ENVIRONMENTAL REQUIREMENTS

7.1 RELEVANT FEDERAL, STATE, AND LOCAL STATUTES, LAWS, AND GUIDELINES

The following section provides a brief summary of the laws, regulations, Executive Orders, and other guidelines that are relevant to the proposed project activities and alternatives. Included in this summary is a discussion of the consistency of the proposed project activities with each of the plans, policies, and regulations listed below.

Federal Laws and Regulations

The National Environmental Policy Act and California Environmental Quality Act. This Supplemental Environmental Assessment (EA) and Environmental Impact Report (EIR) Addendum has been prepared in accordance with both the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). The local sponsor for the project, Orange County Flood Control District, is the CEQA lead and is responsible for compliance with that State law. Pursuant to Section 15164 of CEQA guidelines, an addendum to an approved EIR shall be prepared if “none of the conditions described in Section 15162 of the guidelines calling for preparation of a subsequent EIR have occurred,” “only if minor technical changes or additions are necessary to make the EIR under consideration adequate under CEQA,” and “the changes to the EIR made by the addendum do not raise important new issues about significant effects on the environment.”

The subject Supplemental EA documents that the above conditions have been met. The proposed modifications will not significantly impact any resources other than those described in the previously prepared environmental documents. Preparation of a Supplemental Environmental Impact Statement (EIS)/EIR is, therefore, not required.

National Historic Preservation Act of 1966, as Amended. The Corps is in compliance with Section 106 of the act. A programmatic agreement (PA) was executed for the Santa Ana River Project in 1992 by the Advisory Council on Historic Preservation. This document detailed the procedures to be followed for each feature of the project. Under the proposed action, additional consultation with the SHPO is required prior to any construction activities that would adversely affect CA-RIV-2802.

Fish and Wildlife Coordination Act. The proposed project is in compliance. The Santa Ana River Project has been fully coordinated with the U.S. Fish and Wildlife Service (USFWS), California Department of Fish and Game (CDFG) and other agencies. Two Coordination Act Reports have been prepared for the SARP (1988 and 1999). These documents are included in the 1988 SEIS and the 2001 SEIS/EIR, and the recommendations continue to be carried forward during implementation of each SARP feature. In recent years, numerous meetings have occurred between the USFWS, CDFG, other resource agencies, local sponsors and the Corps to discuss the various proposed projects in Prado Basin and the Lower Santa Ana River. Discussions included potential impacts to, mitigation for, and minimization and avoidance measures for nesting birds covered under the Migratory Bird Treaty Act (MBTA), species covered under the Federal Endangered Species Act (ESA) and the California Endangered Species Act (CESA) (such as the least Bell’s vireo and Santa Ana sucker), and wildlife movement issues. In addition, consultation with the USFWS under the Endangered Species Act is being conducted and informal discussions have been ongoing with USFWS regarding this work.

Furthermore, this Supplemental EA and EIR Addendum will be sent to the USFWS, the CDFG and other resource agencies for review. There is no change in compliance from the 2001 Final SEIS/EIR.

The Endangered Species Act, as Amended. The Endangered Species Act (ESA) and subsequent amendments provide guidance for the conservation of endangered and threatened species and the ecosystems upon which they depend. **Section 7** requires federal agencies, in consultation with, and with the assistance of the Secretary of the Interior or the Secretary of Commerce, as appropriate, to insure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of threatened or endangered species or result in the destruction or adverse modification of critical habitat for these species. Potential effects of the proposed action on federally-listed species and on designated and proposed critical habitat are being addressed in a formal consultation with USFWS. The Corps has determined that the least Bell's vireo would be affected by removal of vegetation that was occupied in 2017 by two pairs, and that construction noise could potentially affect up to twelve additional pairs in adjacent habitat. Designated critical habitat for vireo would be temporarily and permanently affected, and proposed critical habitat for the yellow-billed cuckoo would be temporarily affected. Coastal sage scrub habitat that was recently occupied by foraging California gnatcatcher would also be temporarily affected, and so the Corps has determined that the proposed project may affect that species. It is anticipated that the request for formal consultation will be sent to USFWS near the start of the public review period for this SEA/EIR Addendum, and that a new or amended Biological Opinion will be provided for the proposed action prior to finalizing this document.

Migratory Bird Treaty Act. The proposed project is in compliance. The Migratory Bird Treaty Act of 1918 (16 U.S.C. 703-711) makes it unlawful to possess, buy, sell, purchase, barter or "take" any migratory bird listed in Title 50 of the Code of Federal Regulations Part 10. "Take" is defined as possession or destruction of migratory birds, their nests or eggs.

Bald and Golden Eagle Protection Act, as Amended. The proposed project is in compliance. The Bald and Golden Eagle Protection Act of 1940 protects bald and golden eagles by prohibiting the taking, possession, and commerce of such birds and establishes civil penalties for violation of this Act. Take of bald and golden eagles is defined as follows: "disturb means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior" (72 FR 31132; 50 CFR 22.3).

On 10 November 2009, the USFWS implemented new rules (74 FR 46835) governing the "take" of golden and bald eagles. The new rules were released under the existing Bald and Golden Eagle Act which has been the primary regulation protection unlisted eagle populations since 1940. All activities that may disturb or incidentally take an eagle or its nest as a result of an otherwise legal activity must be permitted by the USFWS under this act. The definition of disturb (72 FR 31132) includes interfering with normal breeding, feeding, or sheltering behavior to the degree that it causes or is likely to cause decreased productivity or nest abandonment.

The proposed project modification will not affect birds protected under this act, beyond those affects that were addressed in the 2001 Final SEIS/EIR and CESA (2081-2001-023-06). Golden eagles may occasionally forage within the borrow site and other upland habitats within Prado Basin, as do other raptors. However, no nesting habitat will be affected and no nests are known to occur in the vicinity. Mitigation and compensation measures that were outlined in those documents will be implemented as required for impacts related to the Alcoa Dike project. For instance, temporarily impacted areas will be revegetated following construction.

Clean Air Act, as Amended. Under Section 176(c) of the Clean Air Act Amendments (CAAA) of 1990, the Lead Agency is required to make a determination of whether the Alcoa Dike proposed project “conforms” with the State Implementation Plan (SIP). Conformity is defined in Section 176(c) of the CAAA as compliance with the SIP’s purpose of eliminating or reducing the severity and number of violations of the National Ambient Air Quality Standards (NAAQS) and achieving expeditious attainment of such standards. However, if the total direct and indirect emissions from the proposed action are below the General Conformity Rule de minimis emission thresholds, the proposed action would be exempt from performing a comprehensive Air Quality Conformity Analysis, and would be considered to be in conformity with the SIP.

Emissions generated by this proposed project are expected to be temporary, and would be below Federal and local air standards.

For the proposed project, the Corps would implement environmental commitments (AQ-1 to AQ-22) to further ensure that impacts to air quality would not be considered regionally significant, and that construction emissions would not violate NAAQS. The proposed project would have no long-term impacts on local or regional air quality. Thus, emissions from the proposed action would conform to the SIP. The Corps has determined that the proposed project is in compliance with the CAAA.

Clean Water Act, as Amended. The proposed project is in compliance with the guidelines in 40 CFR 230.10(c), promulgated by the Environmental Protection Agency (EPA) under Section 404 (b)(1) of the Clean Water Act (CWA) Guidelines. The 2001 SEIS/EIR identified that the proposed project and other Prado Basin and Vicinity features would affect jurisdictional waters (Waters of the U.S.). The current Alcoa Dike footprint (the proposed action) does not encroach any further into Waters of the U.S. than originally designed, and therefore does not result in additional impacts. See Section 4.2, Biological Resources, for an accounting and description of impacts to Waters of the U.S. related to Alcoa Dike construction. Information on the proposed project’s compliance, including a 404(b)(1) evaluation (see Appendix C), and an assumed waiver of 401 certification pursuant to the Corps Clean Water Act implementing regulations (33CFR 336.1(a)(1)) may also be found in the 2001 Final SEIS/EIR. The Corps’ contractor will obtain a National Pollution Discharge Elimination System (NPDES) construction stormwater permit (Section 402) prior to construction. A Stormwater Pollution Prevention Plan (SWPPP) including Best Management Practices (BMPs) and Erosion and Sedimentation Control Plan would be developed and implemented by the construction contractor prior to and during construction to minimize site erosion.

Executive Order 11988, Floodplain Management. Under this Executive Order, the Corps must take action to avoid development in the base floodplain (100-year) unless it is the only practicable alternative to reduce hazards and risks associated with floods; to minimize the impact of floods on human safety, health and welfare; and to restore and preserve the natural and beneficial value of the base floodplain. The Proposed Action would avoid development in the flood basin to the extent practicable to reduce hazards and risks. The Proposed Action is in compliance.

Executive Order 11900. Protection of Wetlands. In developing alternatives, the Corps considered the effects of the proposed project on the survival and quality of wetlands. Projects are to “...avoid to the extent possible the long- and short-term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative...” See Section 4.2, Biological Resources, for an accounting and description of impacts to wetlands related to Alcoa Dike construction. Mitigation measures developed in the 2001 Final SEIS/EIR and subsequently for this project feature have been formulated to reduce impacts on wetlands.

Executive Order 12898. Environmental Justice. The proposed project is in compliance. There will be no impacts resulting from the proposed project modification that will directly affect or displace areas of low income population.

State Regulations

Air Quality

California Air Resources Board. CARB has issued a number of CAAQS. These standards include pollutants not covered under the NAAQS and also require more stringent standards than those under the NAAQS. There is no change in compliance from the 2001 Final SEIS/EIR.

Greenhouse Gases. In 2006, in response to concerns related to global warming and climate change, the California State Legislature adopted ***Assembly Bill 32 (AB 32)***, the “California Global Warming Solutions Act of 2006.” AB 32 focuses on reducing GHGs in California and requires the California Air Resources Board (CARB), the State agency charged with regulating statewide air quality, to adopt rules and regulations that would achieve GHG emissions equivalent to State-wide levels in 1990 by 2020 (Hendrix, Wilson, et. al., 2007). The Proposed Action would not conflict with any applicable plan, policy, or regulation for the purpose of reducing GHG emissions.

Biological Resources

California Endangered Species Act. The Proposed Action is or would be in compliance. Effects of the Proposed Action on state-listed species would be addressed in consultations by OCFCD with CDFW, if necessary. The CESA permit (2081-2001-023-06) previously issued for the SARMP may be amended after receipt of a Biological Opinion by USFWS to address proposed changes to the Alcoa DiKE feature, if necessary. However, previous coordination with CDFW on Reach 9 features indicated that neither CESA nor a Streambed Alteration Agreement would be required, considering that construction will be overseen by the federal government, and routine OMMR&R conducted by the non-federal sponsors would not result in additional effects to state-listed species. The same situation exists for Alcoa DiKE.

California Department of Fish and Wildlife Code, Section 1600

The Proposed Action is, or would be in compliance. A 1601 Streambed Alteration Agreement (SAA No. 6-2001-263) was issued for the SARMP in 2002. This SAA had expired, and a new SAA (1600-2009-0031-R6) was signed by OCFCD in October 2009. OCFCD is responsible for coordinating with CDFW if necessary for any additional updates. However, previous coordination with CDFW on Reach 9 features indicated that neither CESA nor a SAA would be required, considering that construction will be overseen by the federal government, and routine OMMR&R conducted by the non-federal sponsors would not result in additional effects to listed species. The same situation exists for Alcoa DiKE. Nevertheless, minimization and avoidance measures included in the 2009 amended SAA would be followed during construction of Alcoa DiKE.

Native Plant Protection Act. The proposed project is in compliance. California’s Native Plant Protection Act (NPPA) requires all State agencies to utilize their authority to carry out programs to conserve endangered and rare native plants. Provisions of NPPA prohibit the taking of listed plants from the wild and require notification of the DFG at least 10 days in advance of any change in land use. This allows DFG to salvage listed plant species that would otherwise be destroyed. The Applicant is required

to conduct botanical inventories and consult with DFG during and planning to comply with the provisions of this act and sections of CEQA that apply to rare or endangered plants.

Impacts to native plants listed as threatened or endangered would not differ from those addressed in the 2001 Final SEIS/EIR and CESA (2081-2001-023-06). Mitigation and compensation measures that were outlined in those documents will be implemented as required for impacts related to the Alcoa Dike project.

Local Regulations

Air Quality

The proposed project is within SCAQMD jurisdiction. The SCAQMD is responsible for planning, implementing, and enforcing federal and State ambient standards within this portion of the South Coast Air Basin. The regulations of this agency are primarily focused on stationary sources; therefore, most of the local agency regulations are not relevant to this Project.

The SCAQMD has visible emissions, nuisance, and fugitive dust emissions regulations with which the Project's construction will need to comply. The specific regulations are as follows:

- SCAQMD Rule 401 – Visible Emissions
- SCAQMD Rule 402 – Nuisance
- SCQMD Rule 403 – Fugitive Dust

These rules limit the visible dust emissions from the project construction sites, prohibit emissions that can cause a public nuisance and require the prevention and reduction of fugitive dust emissions to the extent possible. There is no change in compliance from the 2001 Final SEIS/EIR.

Biological Resources

Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP). The proposed project is consistent with this Plan, although Endangered Species Act compliance is being achieved through Section 7 consultation with the USFWS. The MSHCP is a comprehensive, multi-jurisdictional Habitat Conservation Plan (HCP) focusing on conservation of species and their associated habitats in Western Riverside County. This HCP is one of several large, multi-jurisdictional habitat-planning efforts in Southern California with the overall goal of maintaining biological and ecological diversity within a rapidly urbanizing region. The MSHCP is intended to allow Riverside County and its cities to better control local land-use decisions and maintain a strong economic climate in the region while addressing the requirements of the state and federal Endangered Species Acts.

The Biological Resources section of this SEA document the project's proposed mitigation, which is consistent with MSHCP requirements for a "Determination of Biologically Equivalent or Superior Preservation."

Riverside County Integrated Project General Plan. The proposed project is in compliance. This plan also directs policy towards the conservation of native vegetation in Riverside County. These policies are based on maintaining the ecological diversity in Riverside County through the management of native vegetation. Policies that are intended to protect superior examples of native vegetation resources in conjunction with permitted uses include: (1) update the vegetation map for western Riverside County in

consultation with the California Department of Fish and Game, the Natural Diversity Data Base, the United States Forest Service, and other knowledgeable agencies and the County shall also provide these agencies with data as needed; (2) expand vegetation mapping to include the eastern portion of the County of Riverside; (3) maintain and conserve superior examples of native trees, natural vegetation, stands of established trees, and other features for ecosystem, aesthetic, and water conservation purposes; (4) conserve the oak tree resources in the County; and (5) encourage research and education on the effects of smog and other forms of pollution on human health and on natural vegetation.

City of Corona General Plan. The proposed project is in compliance. The Proposed Project falls within the jurisdictional boundaries of the City of Corona. Pursuant to California state law (Government Code § 65301), the City of Corona has adopted a General Plan to guide long-term development within its boundaries and sphere of influence.

The following are selected goals and policies from the City of Corona General Plan that are specific to biological and sensitive biological resources occurring and/or potentially occurring in the Project area.

Goal: Protect, enhance, and sustain significant plant and wildlife species and habitat, which exist in Corona and its Planning Area for the long term benefit of the natural environment, and Corona visitors and residents.

Policies:

- Implement programs that rehabilitate and enhance the biological value, diversity, and integrity of the City's natural resources through such means as vegetation restoration, control of alien plants and animal species, landscape buffering, and natural watercourse channel restoration.
- Preserve the species and habitats listed in Tables 4.2-1 and 4.2-2 of the *Technical Background Report* and those that may be considered by the City of Corona in the future.
- Acquire and maintain the most current technical information available regarding the status, location, and condition of significant and sensitive biological species and habitats as well as assessments of potential for impacts on those resources and how such resources should be appropriately protected, conditions sustained, and impacts mitigated from nearby development.
- Participate and enroll in the Western Riverside County Multi-Species Habitat Conservation Plan (MSHCP) to conserve biological diversity through protection of natural communities.
- Preserve the wildlife habitat of significant natural open space areas including expanding habitat ranges, movement corridors, and nesting sites by setting aside lands between open space areas to serve as biological linkages. This network of biological habitat linkages may include the use of riparian corridors, open space dedications, development of parks and/or natural resources, or greenbelts. Any proposed recreational use of those areas such as trails shall be designed to strictly avoid damaging sensitive habitat area.
- Identify and aggressively pursue obtaining available State and Federal funding for the long-term maintenance and protection of significant and sensitive biological resources areas.

Goal: Ensure that biological resources are not impacted during or as a result of construction and development activity.

Policies:

- Require that construction activities be conducted in a manner to minimize adverse impacts on natural resources through the use of Best Management Practices, as established and updated by the City of Corona.
- Where applications for development are being proposed in undeveloped areas of the City and the SOI areas, or in areas that an Initial Study has determined there is potential for significant adverse impacts to biological resources, and Environmental Impact Report (EIR) or a Mitigated Negative Declaration (MND) shall be undertaken by the proponent. As part of these studies, the proponent shall also submit a Biological Resources Technical Report with the following qualifications:

7. Compliance with Environmental Requirements

- o The report must be prepared by a qualified professional who addresses the Proposed Project's impact on federally and State-listed and candidate plants and animals; California Department of Fish and Game (CDFG) Special Animals; natural communities of high inventory priority with the California Natural Diversity Database (CNDDDB); and any other special interest species or communities identified in the General Plan Technical Background Report, or those hereafter named by federal or State trustee agencies.
- o If appropriate habitat for any listed species occurs on the site, a qualified biologist shall conduct focused surveys according to USFWS and/or CDFG protocol.
- o A qualified botanist shall conduct a focused rare plant survey during the appropriate time of year following USFWS and/or CDFG protocol.
- o If any listed species would potentially be impacted by the Proposed Project, consultation with USFWS and/or CDFG would be required to identify mitigation measures to avoid, minimize, or compensate for impacts. These mitigation measures would be included in the report.
- o The report shall also define a program for monitoring and evaluating the effectiveness of the specified mitigation measures.

Goal: Protect natural and biological resources within riparian corridors and wetlands.

Policies:

- Review proposed developments in riparian and wetland habitats to evaluate their conformance with the following policies and standards:
 - o Full consideration of the nature of existing biological resources present and all reasonable measures that shall be taken to avoid significant impacts, including retention of sufficient natural open space and undeveloped buffer zones.
 - o Development shall be designed and sited to preserve watercourses, riparian habitat, vernal pools, and wetlands in their natural condition, unless these actions result in an infeasible and.
 - o Where riparian corridors are retained, they shall be protected by an adequate buffer with a minimum 100 foot protection zone from the edge of the tree, shrub, or herb canopy.
 - o Development shall incorporate habitat linkages (wildlife corridors) to adjacent open spaces, where appropriate.
 - o Development shall incorporate fences, walls, vegetative cover, or other measures to adequately buffer habitat areas, linkages, or corridors from the built environment.
 - o Roads and utilities shall be located and designed such that conflicts with biological resources, habitat areas, linkages, or corridors are avoided.
 - o Development shall utilize appropriate open space or conservation easements in order to protect sensitive species or their habitats.
 - o Development shall mitigate unavoidable adverse impacts to waters of the United States, wetlands, and riparian habitat by replacement on an in-kind basis (i.e., riparian habitat is to be replaced by riparian habitat of the same type). Replacement shall be based on a ratio determined by the California State Fish and Game Department and/or the Army Corps of Engineers in order to account for the potentially diminished habitat value of replacement habitat. Such replacement shall occur on the original development site, whenever possible. Alternatively, replacement can be effected, subject to State and Federal regulatory approval, by creation or restoration of replacement habitats elsewhere, preferably within Corona's Planning Area. Replacement habitats are to be protected in perpetuity through acquisition, an appropriate conservation easement, or dedication.
- Prohibit development and grading that alters the biological integrity of riparian corridors, unless no feasible alternative exists or the damaged habitat is replaced with habitat of equivalent value. Development that is permitted with riparian corridors shall be based on field evidence and interpretation of physical and biological data that shall include the following:
 - o The nature and extent of the vegetation, or in the case of disturbed sites, the potential vegetation
 - o Topography
 - o Hydrology

- Restrict development within riparian corridors to the following uses:
 - o Education and research, excluding buildings and other structures
 - o Passive (non-motorized recreation)
 - o Trails and scenic overlooks on public land(s) if located outside of undeveloped buffer zones
 - o Fish, aquatic, and wildlife management activities
 - o Necessary water supply and
 - o Resource consumptive uses as provided for in the Fish and Game Code and Title 14 of the California Administrative Code
 - o Flood control projects where no other methods are available to protect the public safety
 - o Bridges when supports are not in significant conflict with riparian resources
 - o Underground utilities

Goal: Protect forest and vegetation resources in the City of Corona and the Planning Area.

Policies:

- Cooperate with federal and State agencies to achieve the sustainable conservation of forest lands as a means of providing open space and protecting natural resources and MSHCP habitat lands.
- Maintain and conserve superior examples of native trees, natural vegetation, stands of established trees, and other features for ecosystem, aesthetic, and water conservation purposes.

Noise

As long as construction activities occur during 7:00 a.m. to 6:00 p.m., Monday through Saturday, which are the exempted time periods per County of Riverside Municipal Code and City of Corona Municipal Code, the proposed construction would be in compliance with local (city and county) noise ordinances; any changes to that schedule, including occasional overtime work, would require obtaining a variance from local authorities.

8. AGENCY COORDINATION

The proposed project was coordinated formally and informally with numerous agencies, organizations, and individuals, including the U.S. Fish and Wildlife Service (USFWS), California Department of Fish and Wildlife (CDFW), State Office of Historic Preservation, Regional Water Quality Control Board (RWQCB), and local cities and counties. This Draft SEA/EIR Addendum will be distributed to several public agencies and interested parties for review as identified in Distribution List, Appendix B.

The Santa Ana River Project has been fully coordinated with resource agencies and interested parties since the 1970's. Summaries of past coordination, consultation and permitting are included in the 1988 SEIS and the 2001 SEIS/EIR. In recent years, numerous meetings have occurred between the USFWS, CDFW, other resource agencies, local sponsors and the Corps to discuss the various proposed projects in the Prado Basin including the Alcoa Dike Project, and other proposed and ongoing embankment protection projects. Specific issues related to the proposed project have also been coordinated with the resource agencies including the USFWS in which it was discussed that the Alcoa Dike project area itself is known to be occupied by listed species (least Bell's vireo) as was confirmed during the recent subsequent surveys (SAWA 2017). The surveys identified 2 (two) pairs within the project footprint and another 12 (twelve) pair of least Bell's vireo in the occupied habitat within 200 feet of the Alcoa work area. It was determined that habitat supporting two pairs would be removed by the proposed project and the other 12 pairs could be impacted by the construction noise of the project. Potential haul route options were shared with USFWS to determine if there was an opportunity to minimize or avoid effects to some territories, and the route presented in this document was determined to have the least impact. Coastal California gnatcatcher are also known to forage within the vicinity of the project borrow site. It was further discussed that the Corps is in a process of reinitiating formal consultation on both species for this project feature.

9. LIST OF PREPARERS AND REVIEWERS

Name	Role
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Naeem Siddiqui	Biologist, Ecosystem Planning Section
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Priyo Majumdar	Environmental Coordinator, Regional Planning Section

10. CONCLUSION

The changes to project features of the proposed Alcoa Dike project would not have any significant impact on the environmental quality of the area beyond those addressed in previous Environmental Impact Statements (EIS) related to overall Prado Basin and Vicinity construction. Therefore, another EIS is not required for these features.

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Appendix A

Air Quality Calculations

Alcoa Dike - Riverside-South Coast County, Summer

Alcoa Dike
Riverside-South Coast County, Summer**1.0 Project Characteristics**

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	0.00	User Defined Unit	130.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.4	Precipitation Freq (Days)	28
Climate Zone	10			Operational Year	2021
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Alcoa Dike - Riverside-South Coast County, Summer

Project Characteristics - Alcoa Dike is located in the city of Corona, Riverside County, California.

Land Use - The Alcoa Dike is designed for flood risk management (FRM) projection. Land Use - Estimated project area acreage.

Construction Phase - Construction Phase Timeline Duration - Estimated construction schedule

Off-road Equipment - Off-road Equipment - Estimated construction equipment

Grading - Grading and Site Preparation - Estimated acreage.

Off-road Equipment - Off-road Equipment - Estimated construction equipment

Off-road Equipment - Off-road Equipment - Estimated construction equipment

Off-road Equipment - Off-road Equipment - Estimated construction equipment

Off-road Equipment - Off-road Equipment - Estimated construction equipment

Off-road Equipment - Off-road Equipment - Estimated construction equipment

Trips and VMT - Trips and VMT - Construction - Estimated Trips and VMT.

On-road Fugitive Dust - Assume haul trips occur on paved and unpaved roads.

Energy Use -

[illegible]

Alcoa Dike - Riverside-South Coast County, Summer

tblConstructionPhase	PhaseEndDate	3/28/2034	11/30/2020
tblConstructionPhase	PhaseEndDate	7/20/2032	6/24/2020
tblConstructionPhase	PhaseEndDate	1/8/2019	1/21/2019
tblConstructionPhase	PhaseEndDate	9/1/2020	7/15/2019
tblConstructionPhase	PhaseEndDate	5/24/2033	9/19/2020
tblConstructionPhase	PhaseEndDate	6/25/2019	3/8/2019
tblConstructionPhase	PhaseStartDate	5/25/2033	9/20/2020
tblConstructionPhase	PhaseStartDate	9/2/2020	7/16/2019
tblConstructionPhase	PhaseStartDate	4/4/2018	11/1/2018
tblConstructionPhase	PhaseStartDate	6/26/2019	3/9/2019
tblConstructionPhase	PhaseStartDate	7/21/2032	6/25/2020
tblConstructionPhase	PhaseStartDate	1/9/2019	1/22/2019
tblGrading	AcresOfGrading	275.00	75.00
tblGrading	AcresOfGrading	0.00	75.00
tblLandUse	LotAcreage	0.00	130.00
tblTripsAndVMT	HaulingTripNumber	0.00	8.00
tblTripsAndVMT	HaulingTripNumber	0.00	8.00
tblTripsAndVMT	HaulingTripNumber	0.00	8.00
tblTripsAndVMT	HaulingTripNumber	0.00	8.00
tblTripsAndVMT	HaulingTripNumber	0.00	8.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	WorkerTripNumber	0.00	1.00

Alcoa Dike - Riverside-South Coast County, Summer

tblTripsAndVMT	:	WorkerTripNumber	:	0.00	:	20.00
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2.0 Emissions Summary

Alcoa Dike - Riverside-South Coast County, Summer

2.1 Overall Construction (Maximum Daily Emission)**Unmitigated Construction**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	3.8136	38.5325	23.0730	0.0409	0.1766	1.9407	2.1173	0.0470	1.8069	1.8539	0.0000	4,085.081 6	4,085.081 6	1.0750	0.0000	4,111.9559
2019	4.8528	54.7202	34.2888	0.0646	20.2658	2.3927	22.6585	10.2016	2.2013	12.4028	0.0000	6,401.188 7	6,401.188 7	1.9516	0.0000	6,449.978 5
2020	2.2246	19.3555	17.6745	0.0294	0.2308	1.1190	1.3498	0.0613	1.0522	1.1135	0.0000	2,803.104 2	2,803.104 2	0.7209	0.0000	2,818.871 7
Maximum	4.8528	54.7202	34.2888	0.0646	20.2658	2.3927	22.6585	10.2016	2.2013	12.4028	0.0000	6,401.188 7	6,401.188 7	1.9516	0.0000	6,449.978 5

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	3.8136	38.5325	23.0730	0.0409	0.1766	1.9407	2.1173	0.0470	1.8069	1.8539	0.0000	4,085.081 6	4,085.081 6	1.0750	0.0000	4,111.9559
2019	4.8528	54.7202	34.2888	0.0646	20.2658	2.3927	22.6585	10.2016	2.2013	12.4028	0.0000	6,401.188 7	6,401.188 7	1.9516	0.0000	6,449.978 5
2020	2.2246	19.3555	17.6745	0.0294	0.2308	1.1190	1.3498	0.0613	1.0522	1.1135	0.0000	2,803.104 2	2,803.104 2	0.7209	0.0000	2,818.871 7
Maximum	4.8528	54.7202	34.2888	0.0646	20.2658	2.3927	22.6585	10.2016	2.2013	12.4028	0.0000	6,401.188 7	6,401.188 7	1.9516	0.0000	6,449.978 5

Alcoa Dike - Riverside-South Coast County, Summer

[illegible]

Alcoa Dike - Riverside-South Coast County, Summer

2.2 Overall Operational**Unmitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

Alcoa Dike - Riverside-South Coast County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	11/1/2018	1/21/2019	6	70	
2	Site Preparation	Site Preparation	1/22/2019	3/8/2019	6	40	
3	Grading	Grading	3/9/2019	7/15/2019	6	110	
4	Building Construction	Building Construction	7/16/2019	6/24/2020	6	296	
5	Paving	Paving	6/25/2020	9/19/2020	6	75	
6	Architectural Coating	Architectural Coating	9/20/2020	11/30/2020	6	61	

Acres of Grading (Site Preparation Phase): 75

Acres of Grading (Grading Phase): 75

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Alcoa Dike - Riverside-South Coast County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Demolition	Excavators	3	8.00	158	0.38
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Excavators	2	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Paving Equipment	2	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Alcoa Dike - Riverside-South Coast County, Summer

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Architectural Coating	1	1.00	1.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	20.00	1.00	8.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Demolition	6	15.00	1.00	8.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	1.00	8.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	1.00	8.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	1.00	8.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.7190	38.3225	22.3040	0.0388		1.9386	1.9386		1.8048	1.8048		3,871.7665	3,871.7665	1.0667		3,898.4344
Total	3.7190	38.3225	22.3040	0.0388		1.9386	1.9386		1.8048	1.8048		3,871.7665	3,871.7665	1.0667		3,898.4344

Alcoa Dike - Riverside-South Coast County, Summer

3.2 Demolition - 2018**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	6.7000e-004	0.0311	3.6100e-003	9.0000e-005	2.5200e-003	1.2000e-004	2.6400e-003	6.8000e-004	1.1000e-004	7.9000e-004		9.4112	9.4112	5.9000e-004		9.4261
Vendor	3.6900e-003	0.1215	0.0235	2.6000e-004	6.4000e-003	1.0200e-003	7.4200e-003	1.8400e-003	9.7000e-004	2.8200e-003		27.9132	27.9132	2.3100e-003		27.9708
Worker	0.0903	0.0574	0.7419	1.7700e-003	0.1677	1.0500e-003	0.1687	0.0445	9.7000e-004	0.0454		175.9907	175.9907	5.3600e-003		176.1247
Total	0.0947	0.2100	0.7690	2.1200e-003	0.1766	2.1900e-003	0.1788	0.0470	2.0500e-003	0.0490		213.3151	213.3151	8.2600e-003		213.5215

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.7190	38.3225	22.3040	0.0388		1.9386	1.9386		1.8048	1.8048	0.0000	3,871.7665	3,871.7665	1.0667		3,898.4344
Total	3.7190	38.3225	22.3040	0.0388		1.9386	1.9386		1.8048	1.8048	0.0000	3,871.7665	3,871.7665	1.0667		3,898.4344

Alcoa Dike - Riverside-South Coast County, Summer

3.2 Demolition - 2018**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	6.7000e-004	0.0311	3.6100e-003	9.0000e-005	2.5200e-003	1.2000e-004	2.6400e-003	6.8000e-004	1.1000e-004	7.9000e-004		9.4112	9.4112	5.9000e-004		9.4261
Vendor	3.6900e-003	0.1215	0.0235	2.6000e-004	6.4000e-003	1.0200e-003	7.4200e-003	1.8400e-003	9.7000e-004	2.8200e-003		27.9132	27.9132	2.3100e-003		27.9708
Worker	0.0903	0.0574	0.7419	1.7700e-003	0.1677	1.0500e-003	0.1687	0.0445	9.7000e-004	0.0454		175.9907	175.9907	5.3600e-003		176.1247
Total	0.0947	0.2100	0.7690	2.1200e-003	0.1766	2.1900e-003	0.1788	0.0470	2.0500e-003	0.0490		213.3151	213.3151	8.2600e-003		213.5215

3.2 Demolition - 2019**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.5134	35.7830	22.0600	0.0388		1.7949	1.7949		1.6697	1.6697		3,816.8994	3,816.8994	1.0618		3,843.4451
Total	3.5134	35.7830	22.0600	0.0388		1.7949	1.7949		1.6697	1.6697		3,816.8994	3,816.8994	1.0618		3,843.4451

Alcoa Dike - Riverside-South Coast County, Summer

3.2 Demolition - 2019**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	6.4000e-004	0.0292	3.5100e-003	9.0000e-005	6.3600e-003	1.1000e-004	6.4700e-003	1.6200e-003	1.0000e-004	1.7200e-003		9.3256	9.3256	5.8000e-004		9.3401
Vendor	3.3300e-003	0.1138	0.0213	2.6000e-004	6.4000e-003	8.6000e-004	7.2700e-003	1.8400e-003	8.3000e-004	2.6700e-003		27.7303	27.7303	2.2200e-003		27.7857
Worker	0.0826	0.0507	0.6664	1.7100e-003	0.1677	1.0300e-003	0.1687	0.0445	9.5000e-004	0.0454		170.6284	170.6284	4.7800e-003		170.7478
Total	0.0866	0.1937	0.6912	2.0600e-003	0.1804	2.0000e-003	0.1824	0.0479	1.8800e-003	0.0498		207.6842	207.6842	7.5800e-003		207.8736

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.5134	35.7830	22.0600	0.0388		1.7949	1.7949		1.6697	1.6697	0.0000	3,816.8994	3,816.8994	1.0618		3,843.4451
Total	3.5134	35.7830	22.0600	0.0388		1.7949	1.7949		1.6697	1.6697	0.0000	3,816.8994	3,816.8994	1.0618		3,843.4451

Alcoa Dike - Riverside-South Coast County, Summer

3.2 Demolition - 2019**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	6.4000e-004	0.0292	3.5100e-003	9.0000e-005	6.3600e-003	1.1000e-004	6.4700e-003	1.6200e-003	1.0000e-004	1.7200e-003		9.3256	9.3256	5.8000e-004		9.3401
Vendor	3.3300e-003	0.1138	0.0213	2.6000e-004	6.4000e-003	8.6000e-004	7.2700e-003	1.8400e-003	8.3000e-004	2.6700e-003		27.7303	27.7303	2.2200e-003		27.7857
Worker	0.0826	0.0507	0.6664	1.7100e-003	0.1677	1.0300e-003	0.1687	0.0445	9.5000e-004	0.0454		170.6284	170.6284	4.7800e-003		170.7478
Total	0.0866	0.1937	0.6912	2.0600e-003	0.1804	2.0000e-003	0.1824	0.0479	1.8800e-003	0.0498		207.6842	207.6842	7.5800e-003		207.8736

3.3 Site Preparation - 2019**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					20.0547	0.0000	20.0547	10.1454	0.0000	10.1454			0.0000			0.0000
Off-Road	4.3350	45.5727	22.0630	0.0380		2.3904	2.3904		2.1991	2.1991		3,766.4529	3,766.4529	1.1917		3,796.2445
Total	4.3350	45.5727	22.0630	0.0380	20.0547	2.3904	22.4451	10.1454	2.1991	12.3445		3,766.4529	3,766.4529	1.1917		3,796.2445

Alcoa Dike - Riverside-South Coast County, Summer

3.3 Site Preparation - 2019**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.1200e-003	0.0511	6.1400e-003	1.5000e-004	3.5000e-003	1.8000e-004	3.6800e-003	9.6000e-004	1.8000e-004	1.1400e-003		16.3198	16.3198	1.0100e-003		16.3452
Vendor	3.3300e-003	0.1138	0.0213	2.6000e-004	6.4000e-003	8.6000e-004	7.2700e-003	1.8400e-003	8.3000e-004	2.6700e-003		27.7303	27.7303	2.2200e-003		27.7857
Worker	0.0991	0.0608	0.7997	2.0600e-003	0.2012	1.2400e-003	0.2024	0.0534	1.1400e-003	0.0545		204.7540	204.7540	5.7300e-003		204.8973
Total	0.1036	0.2257	0.8271	2.4700e-003	0.2111	2.2800e-003	0.2134	0.0562	2.1500e-003	0.0583		248.8041	248.8041	8.9600e-003		249.0282

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					20.0547	0.0000	20.0547	10.1454	0.0000	10.1454			0.0000			0.0000
Off-Road	4.3350	45.5727	22.0630	0.0380		2.3904	2.3904		2.1991	2.1991	0.0000	3,766.4529	3,766.4529	1.1917		3,796.2445
Total	4.3350	45.5727	22.0630	0.0380	20.0547	2.3904	22.4451	10.1454	2.1991	12.3445	0.0000	3,766.4529	3,766.4529	1.1917		3,796.2445

Alcoa Dike - Riverside-South Coast County, Summer

3.3 Site Preparation - 2019**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.1200e-003	0.0511	6.1400e-003	1.5000e-004	3.5000e-003	1.8000e-004	3.6800e-003	9.6000e-004	1.8000e-004	1.1400e-003		16.3198	16.3198	1.0100e-003		16.3452
Vendor	3.3300e-003	0.1138	0.0213	2.6000e-004	6.4000e-003	8.6000e-004	7.2700e-003	1.8400e-003	8.3000e-004	2.6700e-003		27.7303	27.7303	2.2200e-003		27.7857
Worker	0.0991	0.0608	0.7997	2.0600e-003	0.2012	1.2400e-003	0.2024	0.0534	1.1400e-003	0.0545		204.7540	204.7540	5.7300e-003		204.8973
Total	0.1036	0.2257	0.8271	2.4700e-003	0.2111	2.2800e-003	0.2134	0.0562	2.1500e-003	0.0583		248.8041	248.8041	8.9600e-003		249.0282

3.4 Grading - 2019**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.7452	0.0000	6.7452	3.3883	0.0000	3.3883			0.0000			0.0000
Off-Road	4.7389	54.5202	33.3768	0.0620		2.3827	2.3827		2.1920	2.1920		6,140.0195	6,140.0195	1.9426		6,188.5854
Total	4.7389	54.5202	33.3768	0.0620	6.7452	2.3827	9.1278	3.3883	2.1920	5.5803		6,140.0195	6,140.0195	1.9426		6,188.5854

Alcoa Dike - Riverside-South Coast County, Summer

3.4 Grading - 2019**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	4.1000e-004	0.0186	2.2300e-003	6.0000e-005	1.2700e-003	7.0000e-005	1.3400e-003	3.5000e-004	6.0000e-005	4.1000e-004		5.9345	5.9345	3.7000e-004		5.9437
Vendor	3.3300e-003	0.1138	0.0213	2.6000e-004	6.4000e-003	8.6000e-004	7.2700e-003	1.8400e-003	8.3000e-004	2.6700e-003		27.7303	27.7303	2.2200e-003		27.7857
Worker	0.1101	0.0676	0.8885	2.2900e-003	0.2236	1.3800e-003	0.2249	0.0593	1.2700e-003	0.0606		227.5045	227.5045	6.3700e-003		227.6637
Total	0.1139	0.2000	0.9121	2.6100e-003	0.2312	2.3100e-003	0.2335	0.0615	2.1600e-003	0.0636		261.1692	261.1692	8.9600e-003		261.3931

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.7452	0.0000	6.7452	3.3883	0.0000	3.3883			0.0000			0.0000
Off-Road	4.7389	54.5202	33.3768	0.0620		2.3827	2.3827		2.1920	2.1920	0.0000	6,140.0195	6,140.0195	1.9426		6,188.5854
Total	4.7389	54.5202	33.3768	0.0620	6.7452	2.3827	9.1278	3.3883	2.1920	5.5803	0.0000	6,140.0195	6,140.0195	1.9426		6,188.5854

Alcoa Dike - Riverside-South Coast County, Summer

3.4 Grading - 2019**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	4.1000e-004	0.0186	2.2300e-003	6.0000e-005	1.2700e-003	7.0000e-005	1.3400e-003	3.5000e-004	6.0000e-005	4.1000e-004		5.9345	5.9345	3.7000e-004		5.9437
Vendor	3.3300e-003	0.1138	0.0213	2.6000e-004	6.4000e-003	8.6000e-004	7.2700e-003	1.8400e-003	8.3000e-004	2.6700e-003		27.7303	27.7303	2.2200e-003		27.7857
Worker	0.1101	0.0676	0.8885	2.2900e-003	0.2236	1.3800e-003	0.2249	0.0593	1.2700e-003	0.0606		227.5045	227.5045	6.3700e-003		227.6637
Total	0.1139	0.2000	0.9121	2.6100e-003	0.2312	2.3100e-003	0.2335	0.0615	2.1600e-003	0.0636		261.1692	261.1692	8.9600e-003		261.3931

3.5 Building Construction - 2019**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127		2,591.5802	2,591.5802	0.6313		2,607.3635
Total	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127		2,591.5802	2,591.5802	0.6313		2,607.3635

Alcoa Dike - Riverside-South Coast County, Summer

3.5 Building Construction - 2019**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.5000e-004	6.9000e-003	8.3000e-004	2.0000e-005	8.4000e-004	2.0000e-005	8.7000e-004	2.2000e-004	2.0000e-005	2.4000e-004		2.2054	2.2054	1.4000e-004		2.2088
Vendor	3.3300e-003	0.1138	0.0213	2.6000e-004	6.4000e-003	8.6000e-004	7.2700e-003	1.8400e-003	8.3000e-004	2.6700e-003		27.7303	27.7303	2.2200e-003		27.7857
Worker	0.1101	0.0676	0.8885	2.2900e-003	0.2236	1.3800e-003	0.2249	0.0593	1.2700e-003	0.0606		227.5045	227.5045	6.3700e-003		227.6637
Total	0.1136	0.1883	0.9107	2.5700e-003	0.2308	2.2600e-003	0.2331	0.0614	2.1200e-003	0.0635		257.4401	257.4401	8.7300e-003		257.6582

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127	0.0000	2,591.5802	2,591.5802	0.6313		2,607.3635
Total	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127	0.0000	2,591.5802	2,591.5802	0.6313		2,607.3635

Alcoa Dike - Riverside-South Coast County, Summer

3.5 Building Construction - 2019**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.5000e-004	6.9000e-003	8.3000e-004	2.0000e-005	8.4000e-004	2.0000e-005	8.7000e-004	2.2000e-004	2.0000e-005	2.4000e-004		2.2054	2.2054	1.4000e-004		2.2088
Vendor	3.3300e-003	0.1138	0.0213	2.6000e-004	6.4000e-003	8.6000e-004	7.2700e-003	1.8400e-003	8.3000e-004	2.6700e-003		27.7303	27.7303	2.2200e-003		27.7857
Worker	0.1101	0.0676	0.8885	2.2900e-003	0.2236	1.3800e-003	0.2249	0.0593	1.2700e-003	0.0606		227.5045	227.5045	6.3700e-003		227.6637
Total	0.1136	0.1883	0.9107	2.5700e-003	0.2308	2.2600e-003	0.2331	0.0614	2.1200e-003	0.0635		257.4401	257.4401	8.7300e-003		257.6582

3.5 Building Construction - 2020**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345
Total	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345

Alcoa Dike - Riverside-South Coast County, Summer

3.5 Building Construction - 2020**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.4000e-004	6.4000e-003	7.9000e-004	2.0000e-005	8.2000e-004	2.0000e-005	8.4000e-004	2.1000e-004	2.0000e-005	2.3000e-004		2.1832	2.1832	1.3000e-004		2.1864
Vendor	2.7900e-003	0.1029	0.0188	2.6000e-004	6.4000e-003	5.9000e-004	6.9900e-003	1.8400e-003	5.6000e-004	2.4000e-003		27.5391	27.5391	2.0700e-003		27.5907
Worker	0.1018	0.0602	0.8064	2.2100e-003	0.2236	1.3500e-003	0.2249	0.0593	1.2500e-003	0.0605		220.3189	220.3189	5.6500e-003		220.4601
Total	0.1047	0.1695	0.8260	2.4900e-003	0.2308	1.9600e-003	0.2327	0.0613	1.8300e-003	0.0632		250.0412	250.0412	7.8500e-003		250.2372

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345
Total	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345

Alcoa Dike - Riverside-South Coast County, Summer

3.5 Building Construction - 2020**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.4000e-004	6.4000e-003	7.9000e-004	2.0000e-005	8.2000e-004	2.0000e-005	8.4000e-004	2.1000e-004	2.0000e-005	2.3000e-004		2.1832	2.1832	1.3000e-004		2.1864
Vendor	2.7900e-003	0.1029	0.0188	2.6000e-004	6.4000e-003	5.9000e-004	6.9900e-003	1.8400e-003	5.6000e-004	2.4000e-003		27.5391	27.5391	2.0700e-003		27.5907
Worker	0.1018	0.0602	0.8064	2.2100e-003	0.2236	1.3500e-003	0.2249	0.0593	1.2500e-003	0.0605		220.3189	220.3189	5.6500e-003		220.4601
Total	0.1047	0.1695	0.8260	2.4900e-003	0.2308	1.9600e-003	0.2327	0.0613	1.8300e-003	0.0632		250.0412	250.0412	7.8500e-003		250.2372

3.6 Paving - 2020**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926		2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926		2,207.7334	2,207.7334	0.7140		2,225.5841

Alcoa Dike - Riverside-South Coast County, Summer

3.6 Paving - 2020**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	5.5000e-004	0.0253	3.1200e-003	8.0000e-005	1.8700e-003	8.0000e-005	1.9500e-003	5.1000e-004	8.0000e-005	5.9000e-004		8.6162	8.6162	5.1000e-004		8.6290
Vendor	2.7900e-003	0.1029	0.0188	2.6000e-004	6.4000e-003	5.9000e-004	6.9900e-003	1.8400e-003	5.6000e-004	2.4000e-003		27.5391	27.5391	2.0700e-003		27.5907
Worker	0.0763	0.0451	0.6048	1.6600e-003	0.1677	1.0200e-003	0.1687	0.0445	9.3000e-004	0.0454		165.2392	165.2392	4.2400e-003		165.3451
Total	0.0797	0.1733	0.6268	2.0000e-003	0.1759	1.6900e-003	0.1776	0.0468	1.5700e-003	0.0484		201.3945	201.3945	6.8200e-003		201.5648

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926	0.0000	2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926	0.0000	2,207.7334	2,207.7334	0.7140		2,225.5841

Alcoa Dike - Riverside-South Coast County, Summer

3.6 Paving - 2020**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	5.5000e-004	0.0253	3.1200e-003	8.0000e-005	1.8700e-003	8.0000e-005	1.9500e-003	5.1000e-004	8.0000e-005	5.9000e-004		8.6162	8.6162	5.1000e-004		8.6290
Vendor	2.7900e-003	0.1029	0.0188	2.6000e-004	6.4000e-003	5.9000e-004	6.9900e-003	1.8400e-003	5.6000e-004	2.4000e-003		27.5391	27.5391	2.0700e-003		27.5907
Worker	0.0763	0.0451	0.6048	1.6600e-003	0.1677	1.0200e-003	0.1687	0.0445	9.3000e-004	0.0454		165.2392	165.2392	4.2400e-003		165.3451
Total	0.0797	0.1733	0.6268	2.0000e-003	0.1759	1.6900e-003	0.1776	0.0468	1.5700e-003	0.0484		201.3945	201.3945	6.8200e-003		201.5648

3.7 Architectural Coating - 2020**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109		281.4481	281.4481	0.0218		281.9928
Total	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109		281.4481	281.4481	0.0218		281.9928

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3.7 Architectural Coating - 2020**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.7900e-003	0.1029	0.0188	2.6000e-004	6.4000e-003	5.9000e-004	6.9900e-003	1.8400e-003	5.6000e-004	2.4000e-003		27.5391	27.5391	2.0700e-003		27.5907
Worker	5.0900e-003	3.0100e-003	0.0403	1.1000e-004	0.0112	7.0000e-005	0.0113	2.9600e-003	6.0000e-005	3.0300e-003		11.0160	11.0160	2.8000e-004		11.0230
Total	7.8800e-003	0.1059	0.0591	3.7000e-004	0.0176	6.6000e-004	0.0182	4.8000e-003	6.2000e-004	5.4300e-003		38.5550	38.5550	2.3500e-003		38.6137

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109	0.0000	281.4481	281.4481	0.0218		281.9928
Total	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109	0.0000	281.4481	281.4481	0.0218		281.9928

Alcoa Dike - Riverside-South Coast County, Summer

3.7 Architectural Coating - 2020**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.7900e-003	0.1029	0.0188	2.6000e-004	6.4000e-003	5.9000e-004	6.9900e-003	1.8400e-003	5.6000e-004	2.4000e-003		27.5391	27.5391	2.0700e-003		27.5907
Worker	5.0900e-003	3.0100e-003	0.0403	1.1000e-004	0.0112	7.0000e-005	0.0113	2.9600e-003	6.0000e-005	3.0300e-003		11.0160	11.0160	2.8000e-004		11.0230
Total	7.8800e-003	0.1059	0.0591	3.7000e-004	0.0176	6.6000e-004	0.0182	4.8000e-003	6.2000e-004	5.4300e-003		38.5550	38.5550	2.3500e-003		38.6137

4.0 Operational Detail - Mobile**4.1 Mitigation Measures Mobile**

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.542116	0.037578	0.185203	0.118503	0.016241	0.005141	0.017392	0.068695	0.001383	0.001183	0.004582	0.000945	0.001038

5.0 Energy Detail

Historical Energy Use: N

Alcoa Dike - Riverside-South Coast County, Summer

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

Alcoa Dike - Riverside-South Coast County, Summer

5.2 Energy by Land Use - NaturalGas**Mitigated**

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

6.0 Area Detail**6.1 Mitigation Measures Area**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Alcoa Dike - Riverside-South Coast County, Summer

6.2 Area by SubCategory**Unmitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

7.0 Water Detail

Alcoa Dike - Riverside-South Coast County, Summer

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment**Fire Pumps and Emergency Generators**

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

Alcoa Dike - Riverside-South Coast County, Annual

Alcoa Dike
Riverside-South Coast County, Annual**1.0 Project Characteristics**

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	0.00	User Defined Unit	130.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.4	Precipitation Freq (Days)	28
Climate Zone	10			Operational Year	2021
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Alcoa Dike - Riverside-South Coast County, Annual

Project Characteristics - Alcoa Dike is located in the city of Corona, Riverside County, California.

Land Use - The Alcoa Dike is designed for flood risk management (FRM) projection. Land Use - Estimated project area acreage.

Construction Phase - Construction Phase Timeline Duration - Estimated construction schedule

Off-road Equipment - Off-road Equipment - Estimated construction equipment

Grading - Grading and Site Preparation - Estimated acreage.

Off-road Equipment - Off-road Equipment - Estimated construction equipment

Off-road Equipment - Off-road Equipment - Estimated construction equipment

Off-road Equipment - Off-road Equipment - Estimated construction equipment

Off-road Equipment - Off-road Equipment - Estimated construction equipment

Off-road Equipment - Off-road Equipment - Estimated construction equipment

Trips and VMT - Trips and VMT - Construction - Estimated Trips and VMT.

On-road Fugitive Dust - Assume haul trips occur on paved and unpaved roads.

Energy Use -

[illegible]

Alcoa Dike - Riverside-South Coast County, Annual

tblConstructionPhase	PhaseEndDate	3/28/2034	11/30/2020
tblConstructionPhase	PhaseEndDate	7/20/2032	6/24/2020
tblConstructionPhase	PhaseEndDate	1/8/2019	1/21/2019
tblConstructionPhase	PhaseEndDate	9/1/2020	7/15/2019
tblConstructionPhase	PhaseEndDate	5/24/2033	9/19/2020
tblConstructionPhase	PhaseEndDate	6/25/2019	3/8/2019
tblConstructionPhase	PhaseStartDate	5/25/2033	9/20/2020
tblConstructionPhase	PhaseStartDate	9/2/2020	7/16/2019
tblConstructionPhase	PhaseStartDate	4/4/2018	11/1/2018
tblConstructionPhase	PhaseStartDate	6/26/2019	3/9/2019
tblConstructionPhase	PhaseStartDate	7/21/2032	6/25/2020
tblConstructionPhase	PhaseStartDate	1/9/2019	1/22/2019
tblGrading	AcresOfGrading	275.00	75.00
tblGrading	AcresOfGrading	0.00	75.00
tblLandUse	LotAcreage	0.00	130.00
tblTripsAndVMT	HaulingTripNumber	0.00	8.00
tblTripsAndVMT	HaulingTripNumber	0.00	8.00
tblTripsAndVMT	HaulingTripNumber	0.00	8.00
tblTripsAndVMT	HaulingTripNumber	0.00	8.00
tblTripsAndVMT	HaulingTripNumber	0.00	8.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	WorkerTripNumber	0.00	1.00

Alcoa Dike - Riverside-South Coast County, Annual

tblTripsAndVMT	:	WorkerTripNumber	:	0.00	:	20.00
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2.0 Emissions Summary

Alcoa Dike - Riverside-South Coast County, Annual

2.1 Overall Construction**Unmitigated Construction**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.0989	1.0020	0.5972	1.0600e-003	4.5200e-003	0.0505	0.0550	1.2000e-003	0.0470	0.0482	0.0000	96.0106	96.0106	0.0254	0.0000	96.6442
2019	0.5659	5.7923	3.8394	6.8400e-003	0.8068	0.2889	1.0957	0.3985	0.2678	0.6663	0.0000	609.9046	609.9046	0.1699	0.0000	614.1525
2020	0.2284	2.0505	1.9528	3.2300e-003	0.0242	0.1162	0.1403	6.4300e-003	0.1089	0.1153	0.0000	281.0643	281.0643	0.0684	0.0000	282.7730
Maximum	0.5659	5.7923	3.8394	6.8400e-003	0.8068	0.2889	1.0957	0.3985	0.2678	0.6663	0.0000	609.9046	609.9046	0.1699	0.0000	614.1525

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.0989	1.0020	0.5972	1.0600e-003	4.5200e-003	0.0505	0.0550	1.2000e-003	0.0470	0.0482	0.0000	96.0104	96.0104	0.0254	0.0000	96.6441
2019	0.5659	5.7923	3.8394	6.8400e-003	0.8068	0.2889	1.0957	0.3985	0.2678	0.6663	0.0000	609.9039	609.9039	0.1699	0.0000	614.1518
2020	0.2284	2.0505	1.9528	3.2300e-003	0.0242	0.1162	0.1403	6.4300e-003	0.1089	0.1153	0.0000	281.0640	281.0640	0.0684	0.0000	282.7727
Maximum	0.5659	5.7923	3.8394	6.8400e-003	0.8068	0.2889	1.0957	0.3985	0.2678	0.6663	0.0000	609.9039	609.9039	0.1699	0.0000	614.1518

Alcoa Dike - Riverside-South Coast County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
3	10-4-2018	1-3-2019	1.1579	1.1579
4	1-4-2019	4-3-2019	1.9595	1.9595
5	4-4-2019	7-3-2019	2.3233	2.3233
6	7-4-2019	10-3-2019	1.1204	1.1204
7	10-4-2019	1-3-2020	0.9333	0.9333
8	1-4-2020	4-3-2020	0.8416	0.8416
9	4-4-2020	7-3-2020	0.8188	0.8188
10	7-4-2020	9-30-2020	0.5336	0.5336
		Highest	2.3233	2.3233

Alcoa Dike - Riverside-South Coast County, Annual

2.2 Overall Operational

Unmitigated Operational

[illegible]

Alcoa Dike - Riverside-South Coast County, Annual

2.2 Overall Operational**Mitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail**Construction Phase**

Alcoa Dike - Riverside-South Coast County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	11/1/2018	1/21/2019	6	70	
2	Site Preparation	Site Preparation	1/22/2019	3/8/2019	6	40	
3	Grading	Grading	3/9/2019	7/15/2019	6	110	
4	Building Construction	Building Construction	7/16/2019	6/24/2020	6	296	
5	Paving	Paving	6/25/2020	9/19/2020	6	75	
6	Architectural Coating	Architectural Coating	9/20/2020	11/30/2020	6	61	

Acres of Grading (Site Preparation Phase): 75

Acres of Grading (Grading Phase): 75

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Alcoa Dike - Riverside-South Coast County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Demolition	Excavators	3	8.00	158	0.38
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Excavators	2	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Paving Equipment	2	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Alcoa Dike - Riverside-South Coast County, Annual

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Architectural Coating	1	1.00	1.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	20.00	1.00	8.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Demolition	6	15.00	1.00	8.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	1.00	8.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	1.00	8.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	1.00	8.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0967	0.9964	0.5799	1.0100e-003		0.0504	0.0504		0.0469	0.0469	0.0000	91.3226	91.3226	0.0252	0.0000	91.9516
Total	0.0967	0.9964	0.5799	1.0100e-003		0.0504	0.0504		0.0469	0.0469	0.0000	91.3226	91.3226	0.0252	0.0000	91.9516

Alcoa Dike - Riverside-South Coast County, Annual

3.2 Demolition - 2018**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0000e-005	8.3000e-004	1.0000e-004	0.0000	6.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.2197	0.2197	1.0000e-005	0.0000	0.2201
Vendor	1.0000e-004	3.2100e-003	6.6000e-004	1.0000e-005	1.6000e-004	3.0000e-005	1.9000e-004	5.0000e-005	3.0000e-005	7.0000e-005	0.0000	0.6481	0.6481	6.0000e-005	0.0000	0.6495
Worker	2.1200e-003	1.6000e-003	0.0165	4.0000e-005	4.2900e-003	3.0000e-005	4.3100e-003	1.1400e-003	3.0000e-005	1.1600e-003	0.0000	3.8202	3.8202	1.1000e-004	0.0000	3.8230
Total	2.2400e-003	5.6400e-003	0.0173	5.0000e-005	4.5100e-003	6.0000e-005	4.5700e-003	1.2100e-003	6.0000e-005	1.2500e-003	0.0000	4.6880	4.6880	1.8000e-004	0.0000	4.6926

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0967	0.9964	0.5799	1.0100e-003		0.0504	0.0504		0.0469	0.0469	0.0000	91.3225	91.3225	0.0252	0.0000	91.9515
Total	0.0967	0.9964	0.5799	1.0100e-003		0.0504	0.0504		0.0469	0.0469	0.0000	91.3225	91.3225	0.0252	0.0000	91.9515

Alcoa Dike - Riverside-South Coast County, Annual

3.2 Demolition - 2018**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0000e-005	8.3000e-004	1.0000e-004	0.0000	6.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.2197	0.2197	1.0000e-005	0.0000	0.2201
Vendor	1.0000e-004	3.2100e-003	6.6000e-004	1.0000e-005	1.6000e-004	3.0000e-005	1.9000e-004	5.0000e-005	3.0000e-005	7.0000e-005	0.0000	0.6481	0.6481	6.0000e-005	0.0000	0.6495
Worker	2.1200e-003	1.6000e-003	0.0165	4.0000e-005	4.2900e-003	3.0000e-005	4.3100e-003	1.1400e-003	3.0000e-005	1.1600e-003	0.0000	3.8202	3.8202	1.1000e-004	0.0000	3.8230
Total	2.2400e-003	5.6400e-003	0.0173	5.0000e-005	4.5100e-003	6.0000e-005	4.5700e-003	1.2100e-003	6.0000e-005	1.2500e-003	0.0000	4.6880	4.6880	1.8000e-004	0.0000	4.6926

3.2 Demolition - 2019**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0316	0.3221	0.1985	3.5000e-004		0.0162	0.0162		0.0150	0.0150	0.0000	31.1637	31.1637	8.6700e-003	0.0000	31.3804
Total	0.0316	0.3221	0.1985	3.5000e-004		0.0162	0.0162		0.0150	0.0150	0.0000	31.1637	31.1637	8.6700e-003	0.0000	31.3804

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3.2 Demolition - 2019**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-005	2.7000e-004	3.0000e-005	0.0000	6.0000e-005	0.0000	6.0000e-005	1.0000e-005	0.0000	2.0000e-005	0.0000	0.0754	0.0754	0.0000	0.0000	0.0755
Vendor	3.0000e-005	1.0400e-003	2.1000e-004	0.0000	6.0000e-005	1.0000e-005	6.0000e-005	2.0000e-005	1.0000e-005	2.0000e-005	0.0000	0.2229	0.2229	2.0000e-005	0.0000	0.2233
Worker	6.7000e-004	4.9000e-004	5.1200e-003	1.0000e-005	1.4800e-003	1.0000e-005	1.4900e-003	3.9000e-004	1.0000e-005	4.0000e-004	0.0000	1.2820	1.2820	4.0000e-005	0.0000	1.2829
Total	7.1000e-004	1.8000e-003	5.3600e-003	1.0000e-005	1.6000e-003	2.0000e-005	1.6100e-003	4.2000e-004	2.0000e-005	4.4000e-004	0.0000	1.5802	1.5802	6.0000e-005	0.0000	1.5817

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0316	0.3221	0.1985	3.5000e-004		0.0162	0.0162		0.0150	0.0150	0.0000	31.1637	31.1637	8.6700e-003	0.0000	31.3804
Total	0.0316	0.3221	0.1985	3.5000e-004		0.0162	0.0162		0.0150	0.0150	0.0000	31.1637	31.1637	8.6700e-003	0.0000	31.3804

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3.2 Demolition - 2019**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-005	2.7000e-004	3.0000e-005	0.0000	6.0000e-005	0.0000	6.0000e-005	1.0000e-005	0.0000	2.0000e-005	0.0000	0.0754	0.0754	0.0000	0.0000	0.0755
Vendor	3.0000e-005	1.0400e-003	2.1000e-004	0.0000	6.0000e-005	1.0000e-005	6.0000e-005	2.0000e-005	1.0000e-005	2.0000e-005	0.0000	0.2229	0.2229	2.0000e-005	0.0000	0.2233
Worker	6.7000e-004	4.9000e-004	5.1200e-003	1.0000e-005	1.4800e-003	1.0000e-005	1.4900e-003	3.9000e-004	1.0000e-005	4.0000e-004	0.0000	1.2820	1.2820	4.0000e-005	0.0000	1.2829
Total	7.1000e-004	1.8000e-003	5.3600e-003	1.0000e-005	1.6000e-003	2.0000e-005	1.6100e-003	4.2000e-004	2.0000e-005	4.4000e-004	0.0000	1.5802	1.5802	6.0000e-005	0.0000	1.5817

3.3 Site Preparation - 2019**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.4011	0.0000	0.4011	0.2029	0.0000	0.2029	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0867	0.9115	0.4413	7.6000e-004		0.0478	0.0478		0.0440	0.0440	0.0000	68.3374	68.3374	0.0216	0.0000	68.8779
Total	0.0867	0.9115	0.4413	7.6000e-004	0.4011	0.0478	0.4489	0.2029	0.0440	0.2469	0.0000	68.3374	68.3374	0.0216	0.0000	68.8779

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3.3 Site Preparation - 2019**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0000e-005	1.0500e-003	1.3000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.2930	0.2930	2.0000e-005	0.0000	0.2935
Vendor	7.0000e-005	2.3100e-003	4.6000e-004	1.0000e-005	1.3000e-004	2.0000e-005	1.4000e-004	4.0000e-005	2.0000e-005	5.0000e-005	0.0000	0.4952	0.4952	4.0000e-005	0.0000	0.4963
Worker	1.7900e-003	1.3000e-003	0.0137	4.0000e-005	3.9600e-003	2.0000e-005	3.9800e-003	1.0500e-003	2.0000e-005	1.0700e-003	0.0000	3.4186	3.4186	9.0000e-005	0.0000	3.4209
Total	1.8800e-003	4.6600e-003	0.0143	5.0000e-005	4.1600e-003	4.0000e-005	4.1900e-003	1.1100e-003	4.0000e-005	1.1400e-003	0.0000	4.2068	4.2068	1.5000e-004	0.0000	4.2107

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.4011	0.0000	0.4011	0.2029	0.0000	0.2029	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0867	0.9115	0.4413	7.6000e-004		0.0478	0.0478		0.0440	0.0440	0.0000	68.3373	68.3373	0.0216	0.0000	68.8778
Total	0.0867	0.9115	0.4413	7.6000e-004	0.4011	0.0478	0.4489	0.2029	0.0440	0.2469	0.0000	68.3373	68.3373	0.0216	0.0000	68.8778

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3.3 Site Preparation - 2019**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0000e-005	1.0500e-003	1.3000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.2930	0.2930	2.0000e-005	0.0000	0.2935
Vendor	7.0000e-005	2.3100e-003	4.6000e-004	1.0000e-005	1.3000e-004	2.0000e-005	1.4000e-004	4.0000e-005	2.0000e-005	5.0000e-005	0.0000	0.4952	0.4952	4.0000e-005	0.0000	0.4963
Worker	1.7900e-003	1.3000e-003	0.0137	4.0000e-005	3.9600e-003	2.0000e-005	3.9800e-003	1.0500e-003	2.0000e-005	1.0700e-003	0.0000	3.4186	3.4186	9.0000e-005	0.0000	3.4209
Total	1.8800e-003	4.6600e-003	0.0143	5.0000e-005	4.1600e-003	4.0000e-005	4.1900e-003	1.1100e-003	4.0000e-005	1.1400e-003	0.0000	4.2068	4.2068	1.5000e-004	0.0000	4.2107

3.4 Grading - 2019**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3710	0.0000	0.3710	0.1864	0.0000	0.1864	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2606	2.9986	1.8357	3.4100e-003		0.1311	0.1311		0.1206	0.1206	0.0000	306.3573	306.3573	0.0969	0.0000	308.7805
Total	0.2606	2.9986	1.8357	3.4100e-003	0.3710	0.1311	0.5020	0.1864	0.1206	0.3069	0.0000	306.3573	306.3573	0.0969	0.0000	308.7805

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3.4 Grading - 2019**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0000e-005	1.0500e-003	1.3000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.2930	0.2930	2.0000e-005	0.0000	0.2935
Vendor	1.9000e-004	6.3500e-003	1.2600e-003	1.0000e-005	3.5000e-004	5.0000e-005	4.0000e-004	1.0000e-004	5.0000e-005	1.5000e-004	0.0000	1.3619	1.3619	1.2000e-004	0.0000	1.3648
Worker	5.4600e-003	3.9800e-003	0.0417	1.2000e-004	0.0121	8.0000e-005	0.0122	3.2100e-003	7.0000e-005	3.2800e-003	0.0000	10.4457	10.4457	2.9000e-004	0.0000	10.4528
Total	5.6700e-003	0.0114	0.0431	1.3000e-004	0.0125	1.3000e-004	0.0126	3.3300e-003	1.2000e-004	3.4500e-003	0.0000	12.1006	12.1006	4.3000e-004	0.0000	12.1111

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3710	0.0000	0.3710	0.1864	0.0000	0.1864	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2606	2.9986	1.8357	3.4100e-003		0.1311	0.1311		0.1206	0.1206	0.0000	306.3569	306.3569	0.0969	0.0000	308.7801
Total	0.2606	2.9986	1.8357	3.4100e-003	0.3710	0.1311	0.5020	0.1864	0.1206	0.3069	0.0000	306.3569	306.3569	0.0969	0.0000	308.7801

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3.4 Grading - 2019**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0000e-005	1.0500e-003	1.3000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.2930	0.2930	2.0000e-005	0.0000	0.2935
Vendor	1.9000e-004	6.3500e-003	1.2600e-003	1.0000e-005	3.5000e-004	5.0000e-005	4.0000e-004	1.0000e-004	5.0000e-005	1.5000e-004	0.0000	1.3619	1.3619	1.2000e-004	0.0000	1.3648
Worker	5.4600e-003	3.9800e-003	0.0417	1.2000e-004	0.0121	8.0000e-005	0.0122	3.2100e-003	7.0000e-005	3.2800e-003	0.0000	10.4457	10.4457	2.9000e-004	0.0000	10.4528
Total	5.6700e-003	0.0114	0.0431	1.3000e-004	0.0125	1.3000e-004	0.0126	3.3300e-003	1.2000e-004	3.4500e-003	0.0000	12.1006	12.1006	4.3000e-004	0.0000	12.1111

3.5 Building Construction - 2019**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1712	1.5282	1.2444	1.9500e-003		0.0935	0.0935		0.0879	0.0879	0.0000	170.4505	170.4505	0.0415	0.0000	171.4886
Total	0.1712	1.5282	1.2444	1.9500e-003		0.0935	0.0935		0.0879	0.0879	0.0000	170.4505	170.4505	0.0415	0.0000	171.4886

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3.5 Building Construction - 2019**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-005	5.1000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.1435	0.1435	1.0000e-005	0.0000	0.1438
Vendor	2.5000e-004	8.3700e-003	1.6700e-003	2.0000e-005	4.6000e-004	6.0000e-005	5.2000e-004	1.3000e-004	6.0000e-005	1.9000e-004	0.0000	1.7952	1.7952	1.5000e-004	0.0000	1.7990
Worker	7.2000e-003	5.2500e-003	0.0550	1.5000e-004	0.0159	1.0000e-004	0.0160	4.2300e-003	9.0000e-005	4.3200e-003	0.0000	13.7693	13.7693	3.8000e-004	0.0000	13.7787
Total	7.4600e-003	0.0141	0.0568	1.7000e-004	0.0165	1.6000e-004	0.0166	4.3800e-003	1.5000e-004	4.5300e-003	0.0000	15.7081	15.7081	5.4000e-004	0.0000	15.7216

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1712	1.5282	1.2444	1.9500e-003		0.0935	0.0935		0.0879	0.0879	0.0000	170.4503	170.4503	0.0415	0.0000	171.4884
Total	0.1712	1.5282	1.2444	1.9500e-003		0.0935	0.0935		0.0879	0.0879	0.0000	170.4503	170.4503	0.0415	0.0000	171.4884

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3.5 Building Construction - 2019**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-005	5.1000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.1435	0.1435	1.0000e-005	0.0000	0.1438
Vendor	2.5000e-004	8.3700e-003	1.6700e-003	2.0000e-005	4.6000e-004	6.0000e-005	5.2000e-004	1.3000e-004	6.0000e-005	1.9000e-004	0.0000	1.7952	1.7952	1.5000e-004	0.0000	1.7990
Worker	7.2000e-003	5.2500e-003	0.0550	1.5000e-004	0.0159	1.0000e-004	0.0160	4.2300e-003	9.0000e-005	4.3200e-003	0.0000	13.7693	13.7693	3.8000e-004	0.0000	13.7787
Total	7.4600e-003	0.0141	0.0568	1.7000e-004	0.0165	1.6000e-004	0.0166	4.3800e-003	1.5000e-004	4.5300e-003	0.0000	15.7081	15.7081	5.4000e-004	0.0000	15.7216

3.5 Building Construction - 2020**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1601	1.4486	1.2721	2.0300e-003		0.0843	0.0843		0.0793	0.0793	0.0000	174.8655	174.8655	0.0427	0.0000	175.9321
Total	0.1601	1.4486	1.2721	2.0300e-003		0.0843	0.0843		0.0793	0.0793	0.0000	174.8655	174.8655	0.0427	0.0000	175.9321

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3.5 Building Construction - 2020**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-005	4.9000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.1480	0.1480	1.0000e-005	0.0000	0.1482
Vendor	2.1000e-004	7.8500e-003	1.5400e-003	2.0000e-005	4.8000e-004	4.0000e-005	5.2000e-004	1.4000e-004	4.0000e-005	1.8000e-004	0.0000	1.8565	1.8565	1.5000e-004	0.0000	1.8602
Worker	6.9400e-003	4.8600e-003	0.0519	1.5000e-004	0.0166	1.0000e-004	0.0167	4.4100e-003	9.0000e-005	4.5000e-003	0.0000	13.8859	13.8859	3.5000e-004	0.0000	13.8945
Total	7.1600e-003	0.0132	0.0535	1.7000e-004	0.0171	1.4000e-004	0.0173	4.5700e-003	1.3000e-004	4.7000e-003	0.0000	15.8903	15.8903	5.1000e-004	0.0000	15.9029

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1601	1.4485	1.2721	2.0300e-003		0.0843	0.0843		0.0793	0.0793	0.0000	174.8653	174.8653	0.0427	0.0000	175.9319
Total	0.1601	1.4485	1.2721	2.0300e-003		0.0843	0.0843		0.0793	0.0793	0.0000	174.8653	174.8653	0.0427	0.0000	175.9319

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3.5 Building Construction - 2020**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-005	4.9000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.1480	0.1480	1.0000e-005	0.0000	0.1482
Vendor	2.1000e-004	7.8500e-003	1.5400e-003	2.0000e-005	4.8000e-004	4.0000e-005	5.2000e-004	1.4000e-004	4.0000e-005	1.8000e-004	0.0000	1.8565	1.8565	1.5000e-004	0.0000	1.8602
Worker	6.9400e-003	4.8600e-003	0.0519	1.5000e-004	0.0166	1.0000e-004	0.0167	4.4100e-003	9.0000e-005	4.5000e-003	0.0000	13.8859	13.8859	3.5000e-004	0.0000	13.8945
Total	7.1600e-003	0.0132	0.0535	1.7000e-004	0.0171	1.4000e-004	0.0173	4.5700e-003	1.3000e-004	4.7000e-003	0.0000	15.8903	15.8903	5.1000e-004	0.0000	15.9029

3.6 Paving - 2020**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0509	0.5275	0.5495	8.5000e-004		0.0282	0.0282		0.0260	0.0260	0.0000	75.1058	75.1058	0.0243	0.0000	75.7131
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0509	0.5275	0.5495	8.5000e-004		0.0282	0.0282		0.0260	0.0260	0.0000	75.1058	75.1058	0.0243	0.0000	75.7131

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3.6 Paving - 2020**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0000e-005	9.7000e-004	1.3000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.2900	0.2900	2.0000e-005	0.0000	0.2905
Vendor	1.1000e-004	3.9000e-003	7.6000e-004	1.0000e-005	2.4000e-004	2.0000e-005	2.6000e-004	7.0000e-005	2.0000e-005	9.0000e-005	0.0000	0.9221	0.9221	7.0000e-005	0.0000	0.9239
Worker	2.5900e-003	1.8100e-003	0.0193	6.0000e-005	6.1800e-003	4.0000e-005	6.2200e-003	1.6400e-003	4.0000e-005	1.6800e-003	0.0000	5.1727	5.1727	1.3000e-004	0.0000	5.1760
Total	2.7200e-003	6.6800e-003	0.0202	7.0000e-005	6.4900e-003	6.0000e-005	6.5500e-003	1.7300e-003	6.0000e-005	1.7900e-003	0.0000	6.3848	6.3848	2.2000e-004	0.0000	6.3904

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0509	0.5275	0.5495	8.5000e-004		0.0282	0.0282		0.0260	0.0260	0.0000	75.1057	75.1057	0.0243	0.0000	75.7130
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0509	0.5275	0.5495	8.5000e-004		0.0282	0.0282		0.0260	0.0260	0.0000	75.1057	75.1057	0.0243	0.0000	75.7130

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3.6 Paving - 2020**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0000e-005	9.7000e-004	1.3000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.2900	0.2900	2.0000e-005	0.0000	0.2905
Vendor	1.1000e-004	3.9000e-003	7.6000e-004	1.0000e-005	2.4000e-004	2.0000e-005	2.6000e-004	7.0000e-005	2.0000e-005	9.0000e-005	0.0000	0.9221	0.9221	7.0000e-005	0.0000	0.9239
Worker	2.5900e-003	1.8100e-003	0.0193	6.0000e-005	6.1800e-003	4.0000e-005	6.2200e-003	1.6400e-003	4.0000e-005	1.6800e-003	0.0000	5.1727	5.1727	1.3000e-004	0.0000	5.1760
Total	2.7200e-003	6.6800e-003	0.0202	7.0000e-005	6.4900e-003	6.0000e-005	6.5500e-003	1.7300e-003	6.0000e-005	1.7900e-003	0.0000	6.3848	6.3848	2.2000e-004	0.0000	6.3904

3.7 Architectural Coating - 2020**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.3900e-003	0.0514	0.0559	9.0000e-005		3.3800e-003	3.3800e-003		3.3800e-003	3.3800e-003	0.0000	7.7874	7.7874	6.0000e-004	0.0000	7.8025
Total	7.3900e-003	0.0514	0.0559	9.0000e-005		3.3800e-003	3.3800e-003		3.3800e-003	3.3800e-003	0.0000	7.7874	7.7874	6.0000e-004	0.0000	7.8025

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3.7 Architectural Coating - 2020**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.0000e-005	3.1700e-003	6.2000e-004	1.0000e-005	1.9000e-004	2.0000e-005	2.1000e-004	6.0000e-005	2.0000e-005	7.0000e-005	0.0000	0.7500	0.7500	6.0000e-005	0.0000	0.7515
Worker	1.4000e-004	1.0000e-004	1.0500e-003	0.0000	3.4000e-004	0.0000	3.4000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.2805	0.2805	1.0000e-005	0.0000	0.2807
Total	2.3000e-004	3.2700e-003	1.6700e-003	1.0000e-005	5.3000e-004	2.0000e-005	5.5000e-004	1.5000e-004	2.0000e-005	1.6000e-004	0.0000	1.0304	1.0304	7.0000e-005	0.0000	1.0321

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.3900e-003	0.0514	0.0559	9.0000e-005		3.3800e-003	3.3800e-003		3.3800e-003	3.3800e-003	0.0000	7.7874	7.7874	6.0000e-004	0.0000	7.8025
Total	7.3900e-003	0.0514	0.0559	9.0000e-005		3.3800e-003	3.3800e-003		3.3800e-003	3.3800e-003	0.0000	7.7874	7.7874	6.0000e-004	0.0000	7.8025

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3.7 Architectural Coating - 2020**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.0000e-005	3.1700e-003	6.2000e-004	1.0000e-005	1.9000e-004	2.0000e-005	2.1000e-004	6.0000e-005	2.0000e-005	7.0000e-005	0.0000	0.7500	0.7500	6.0000e-005	0.0000	0.7515
Worker	1.4000e-004	1.0000e-004	1.0500e-003	0.0000	3.4000e-004	0.0000	3.4000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.2805	0.2805	1.0000e-005	0.0000	0.2807
Total	2.3000e-004	3.2700e-003	1.6700e-003	1.0000e-005	5.3000e-004	2.0000e-005	5.5000e-004	1.5000e-004	2.0000e-005	1.6000e-004	0.0000	1.0304	1.0304	7.0000e-005	0.0000	1.0321

4.0 Operational Detail - Mobile**4.1 Mitigation Measures Mobile**

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.542116	0.037578	0.185203	0.118503	0.016241	0.005141	0.017392	0.068695	0.001383	0.001183	0.004582	0.000945	0.001038

5.0 Energy Detail

Historical Energy Use: N

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5.1 Mitigation Measures Energy

[illegible]

5.2 Energy by Land Use - NaturalGas

Unmitigated

[illegible]

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5.2 Energy by Land Use - NaturalGas**Mitigated**

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.3 Energy by Land Use - Electricity**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

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5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

6.0 Area Detail

6.1 Mitigation Measures Area

[illegible]

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6.2 Area by SubCategory**Unmitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

7.0 Water Detail

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7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use**Unmitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

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7.2 Water by Land Use**Mitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

8.0 Waste Detail

8.1 Mitigation Measures Waste**Category/Year**

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

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8.2 Waste by Land Use**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

Appendix B

Distribution Mailing List

Federal Agencies

U.S. Environmental Protection Agency
Deanna W. Wieman, Deputy Director
Cross Media Division
Mail Code CMD-2 75
Hawthorne Street
San Francisco, CA 94105

Mr. Mendel Stewart, Field Supervisor
U.S. Fish & Wildlife Service
2177 Salk Avenue, Suite 250
Carlsbad, CA 92008

Ms. Rebecca Gordon
U.S. Fish and Wildlife Service
Palm Springs Office
777 E. Tahquitz Canyon Way, Suite 208
Palm Springs, California 92262

Lisa Lyren, Supervisory Ecologist
U.S. Geological Survey-BRD Western
Ecological Research Center
777 E. Tahquitz Canyon Way
Palm Springs, California 92262

State Agencies

State Clearinghouse
Office of Planning and Research
P.O. Box 3044
Sacramento, CA 95812-3044

Jeff Brandt
California Department of Fish and Wildlife
3602 Inland Empire Blvd., Ste C-220
Ontario, CA 91764

Joanna Gibson
California Department of Fish and Wildlife
3602 Inland Empire Blvd., Ste. C-220
Ontario, CA 91764

Julianne Polanco
State Historic Preservation Officer
Office of Historic Preservation
1725 23rd Street, Suite 100
Sacramento, CA 95816

Mr. Kurt V. Berchtold
Regional Water Quality Control Board
Region 8
Attn: Marc Brown
3737 Main Street, Suite 500
Riverside, CA 92501-3339

Native American Heritage Commission
1515 Harbor Boulevard, Suite 100
West Sacramento, CA 95691

State Water Resources Control Board
Environmental Services Unit
1001 I Street
Sacramento, CA 95814

Enrique Arroyo, District Planner
Department of Parks and Recreation
Inland Empire District
17801 Lake Perris Dr.
Perris, CA 92571

California Dept. of Transportation
District 8
Attn: IGR/CEQA
Division
464 W. 4th St.
San Bernardino, CA 92402

CA Dept. of Toxic Substances Control
5796 Corporate Avenue
Cypress, CA 90630

CA Dept. of Public Health
P.O. Box 997377
Sacramento, CA 95899

Local Agencies

City of Corona Planning Division
400 South Vicentia Avenue
Corona, CA 92882

Joanne Coletta
Community Development Director
400 South Vicentia Avenue
Corona, CA 92880

Mr. Darrell Talbert, City Manager
City of Corona
400 South Vicentia Avenue
Corona, CA 92882

Kerry Eden, Assistant City
Manager/Administrative Services Director
City of Corona
400 South Vicentia Avenue
Corona, CA 92882

Cortez Moses, Parks Maintenance Supervisor
Department of Water & Power
City of Corona
755 Public Safety Way
Corona, CA 92880

Recreation Services Division
City of Corona
400 South Vicentia Avenue
Corona, CA 92882

Dan Bott
Orange County Water District
18700 Ward Street
Fountain Valley, California 92708

Dick Zembal
Orange County Water District
18700 Ward Street
Fountain Valley, CA 92708

Greg Woodside, General Manager
Orange County Water District
10500 Ellis Avenue
Fountain Valley, CA 92708

Joe Grindstaff, General Manager
Inland Empire Utilities Agency
P.O. Box 9020
Chino Hills, CA 91709

General Manager
Western Municipal Water District
14205 Meridian Parkway
Riverside, CA 92518

Mr. Albert Martinez
Riverside Co. Flood Control
1995 Market St.
Riverside, CA 92501

Mr. David Lovell
Assistant Chief, Federal Projects Division
San Bernardino County Flood Control District
Public Works Group
825 East Third Street, Room 118
San Bernardino, CA 92415-0835

Ms. Nardy Khan
Orange County Public Works
Flood Control Div./Santa Ana River Section
300 N. Flower Street
Santa Ana, CA 92703

Mr. Jeff Ernst
Orange County Public Works
Flood Control Div./Santa Ana River Section
300 N. Flower Street
Santa Ana, CA 92703

Mr. Ariel Corpuz
Orange County Public Works
Flood Control Div./Santa Ana River Section
300 N. Flower Street
Santa Ana, CA 92703

South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Riverside County, County Recorder
P.O. Box 751
2724 Gateway Drive
Riverside, CA 92502

Riverside County Planning Department
Director of Planning
4080 Lemon Street
Riverside, CA 92501

Scott Bangle, Parks Director
Riverside County Regional Parks and Open Space
4600 Crestmore Road
Riverside, CA 92509

Marc Brewer
Riverside County Regional Parks and Open Space
4600 Crestmore Road
Riverside, CA 92509

Orange County Clerk - Recorder
12 Civic Center Plaza, Room 101
Santa Ana, CA 92701

Charles Landry, Executive Director
Western Riverside County Regional
Conservation Authority
3403 10th Street
Riverside, CA 92501

Organizations/Groups

Executive Director
Santa Ana Watershed Association
P.O. Box 5407
Riverside, CA 92517

Riverside-Corona Resource Conservation District
Attn: Kerwin Russell
4500 Glenwood Dr., Bldg A
Riverside, CA 92501

David Ruhl
Santa Ana Watershed Project Authority
11615 Sterling Avenue
Riverside, CA 92503

General Manager
Santa Ana Watershed Project Authority
11615 Sterling Avenue
Riverside, CA 92503

Riverside Audubon Society 5370
Riverview Drive
Rubidoux, CA 92509

Audubon Society
San Bernardino Valley Chapter
P.O. Box 10973
San Bernardino, CA 92423-0973

Brad Richards
Chair: Prado Basin Group
Sierra Club San Gorgonio Chapter
4079 Mission Inn Ave.
Riverside, CA 92501

Glenn Parker
Wildlife Corridor Conservation Authority
570 West Avenue 26, Suite 100
Los Angeles, CA 90065

Megan Brousseau, Associate Director
Inland Empire Waterkeeper
6876 Indiana Avenue, Suite D
Riverside, CA 92506

Dan Silver
Executive Director
Endangered Habitats League
8424 Santa Monica Blvd., Suite A 592
Los Angeles, CA 90069-4267

Libraries

Corona Public Library - Nora Jacob
650 South Main Street
Corona, CA 92882

Norco Public Library
3954 Old Hamner Avenue
Norco, CA 91760

Riverside Public Library
Attn: Government Documents
3581 Mission Inn Avenue
Riverside, CA 92501

Native American Contacts

Juaneno Band of Mission Indians
Acjachemen Nation
David Belardes, Chairperson
32161 Avenida Los Amigos
San Juan Capistrano, CA 92675

Gabrieleno/Tongva San Gabriel Band Mission
Anthony Morales, Chairperson
PO Box 693
San Gabriel, CA 91778

Gabrielino Tongva Nation
Sam Dunlap, Chairperson
P.O. Box 86908
Los Angeles, CA 90086

Juaneno Band of Mission Indians
Acjachemen Nation
Anthony Rivera, Chairman
31411-A La Matanza Street
San Juan Capistrano, CA 92675-2674

Gabrielino Tongva Indians of California
Tribal Council
Robert F. Dorame,
Tribal Chair/Cultural Resources
P.O. Box 490
Bellflower, CA 90707

Juaneno Band of Mission Indians
Alfred Cruz, Cultural Resources Coordinator
P.O. Box 25628
San Ana, CA 92799

Juaneno Band of Mission Indians
Sonia Johnston, Tribal Chairperson
P.O. Box 25628
Santa Ana, CA 92799

Juaneno Band of Mission Indians
Anita Espinoza
1740 Concerto Drive
Anaheim, CA 92807
United Coalition to Protect Panhe (UCPP)

Rebecca Robles
119 Avenida San Fernando
San Clemente, CA 92672

Gabrielino-Tongva Tribe
Bernie Acuna
1875 Century Pk East #1500
Los Angeles, CA 90067

Juaneno Band of Mission Indians
Acjachemen Nation
Joyce Perry, Representing Tribal Chairperson
4955 Paseo Segovia
Irvine, CA 92612

Gabrielino-Tongva Tribe
Linda Candelaria,
Chairwoman
1875 Century Pk East #1500
Los Angeles, CA 90067

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