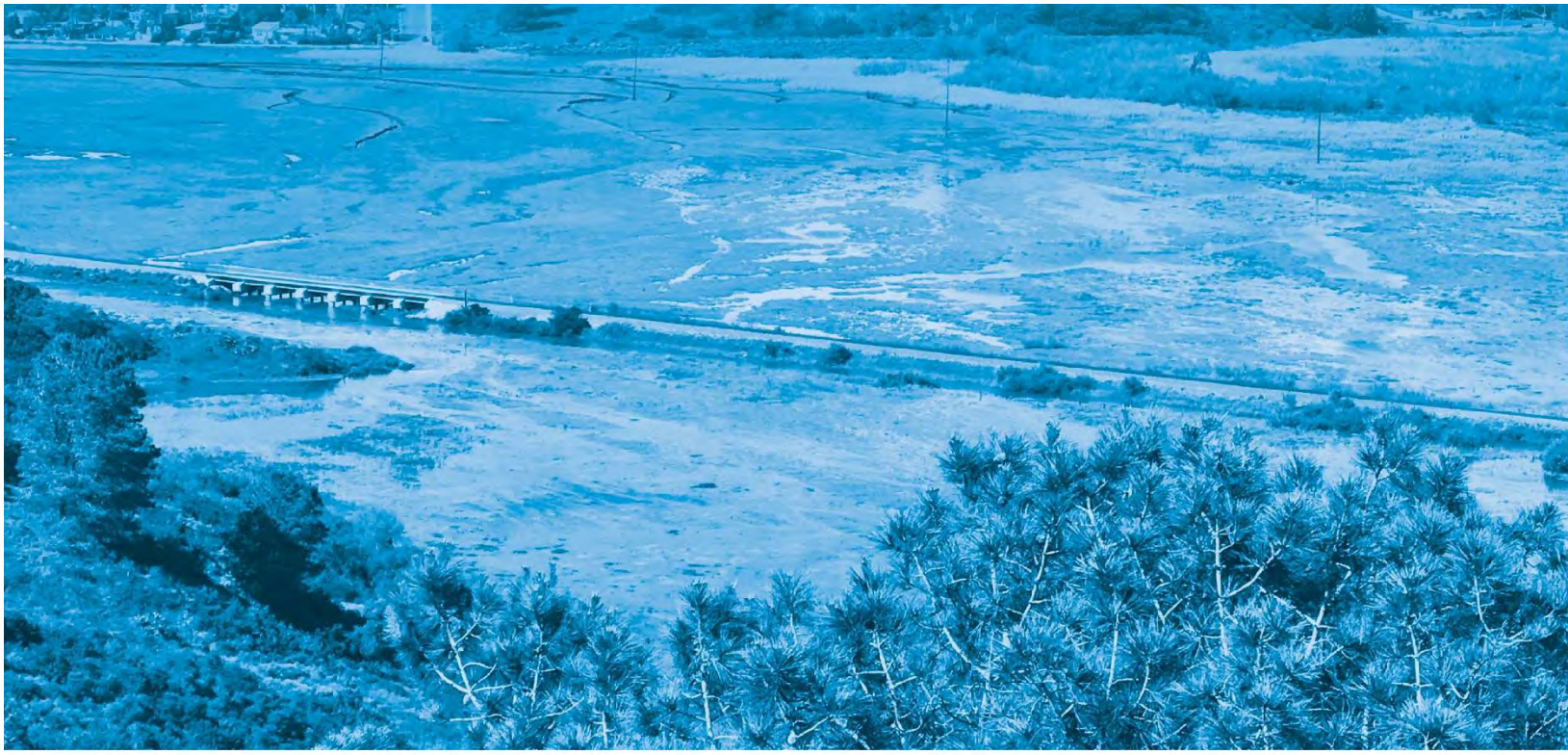
Biological Techncial Report - FINAL

Los Peñasquitos Lagoon Restoration
Phase 1

October 11, 2024

Prepared by: Blackhawk Environmental, Inc. and Dudek



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The City of SAN DIEGO

BIOLOGICAL TECHNICAL REPORT – FINAL

Los Peñasquitos Lagoon Restoration – Phase 1
October 11, 2024

Prepared for:
City of San Diego

Prepared by:

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List of Abbreviations

Abbreviation	Term/Phrase/Name
AA	Assessment Area
ACP	asbestos cement pipe
AMM	Avoidance and Minimization Measure
ASMD	Area Specific Management Directive
BCME	Biological Construction Mitigation/Monitoring Exhibit
BSA	Biological Study Area
BTR	Biological Technical Report
CCC	California Coastal Commission
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFGC	California Fish and Game Code
CFR	Code of Federal Regulations
City	City of San Diego
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRAM	California Rapid Assessment Method
CRPR	California Rare Plant Rank
CSP	California State Parks
CSVR	Consultant Site Visit Record
CWA	Clean Water Act
dB(A)	decibels
DSD	Development Services Department
ED	Environmental Designee
ESA	Environmentally Sensitive Area
ESA	Environmental Science Associates
ESL	Environmentally Sensitive Land
FESA	Federal Endangered Species Act
FP	Fully Protected
GIS	Geographic Information System
GPS	Global Positioning System
HCP	Habitat Conservation Plan
HMMP	Habitat Mitigation and Monitoring Plan
Lagoon	Los Peñasquitos Lagoon
LDC	Land Development Code
LPLEP	Los Peñasquitos Lagoon Enhancement Plan
LPLF	Los Peñasquitos Lagoon Foundation
MBTA	Migratory Bird Treaty Act
MHPA	Multiple Habitat Planning Area
MMC	Mitigation Monitoring Coordination
MOU	Memorandum of Understanding
MS4	Municipal Separate Storm Sewer System

Abbreviation	Term/Phrase/Name
MSCP	Multiple Species Conservation Plan
NAIP	National Agriculture Imagery Program
NCTD	North County Transit District
NEPA	National Environmental Policy Act
NPDES	National Pollutant Discharge Elimination System
NPPA	Native Plant Protection Act
NRCS	Natural Resource Conservation Service
NTP	Notice To Proceed
NWI	National Wetland Inventory
OHWM	ordinary high watermark
PFO	Potential for Occurrence
Final PEIR	Los Peñasquitos Lagoon Enhancement Plan Final Program Environmental Impact Report
Project	Los Peñasquitos Lagoon Restoration Phase 1 Project
QA/QC	quality assurance/quality control
RCB	reinforced box culvert
RCP	Reinforced concrete pipe
RPW	relatively permanent water
RWQCB	Regional Water Quality Control Board
Sediment TMDL	Sediment Total Maximum Daily Load
SLR	sea level rise
SSC	Species of Special Concern
SWRCB	State Water Resources Control Board
TNW	traditional navigable waters
TPSNR	Torrey Pines State Natural Reserve
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey
WQIP	Water Quality Improvement Plan

Executive Summary

Los Peñasquitos Lagoon (Lagoon) is a State Natural Preserve that is part of the Torrey Pines State Natural Reserve (TPSNR) located in coastal north county San Diego. Historically, the Lagoon was mostly salt marsh with an extensive salt panne that fluctuated in size from year to year. The upper portion of the Lagoon was comprised of tidal and non-tidal salt marsh, along with salt panne in areas of natural depressions and riparian habitat where the coastal canyons drained into the upper Lagoon. Land use changes to the Lagoon's watershed over the years have increased sedimentation deposition and resulted in year-round freshwater inputs, ultimately degrading the Lagoon.

The Los Peñasquitos Lagoon Phase 1 Restoration Project (Project) is located within the upper portion of the Lagoon and the upstream riparian corridor within Sorrento Valley in the City of San Diego (City), San Diego County, California. The Lagoon is a State Natural Preserve that is part of the TPSNR, owned and managed by California State Parks (CSP), and is located in coastal northern San Diego County. The Biological Study Area (BSA) consists of an approximately 243-acre area. The Project footprint, comprised of the portion of the BSA that will be directly affected in Sub-phases 1A, 1B, and 1C, totals approximately 114 acres. The BSA is bordered to the east by North County Transit District (NCTD) railway line and to the west by the steep-sided cliffs below Torrey Pines Road, extending from the west side of southbound Interstate 5 northwest into the Lagoon.

The Project proposes to convert the currently degraded marsh system to a restored, ecologically sustainable system. The Project has an estimated construction completion timeline of 2024-2028 and will be implemented in three Sub-phases followed by 5 years of adaptive management and monitoring. Following completing of the Project, there will be the potential for a future Phase 2 located in the northern Lagoon.

- Sub-phase 1A: construction of upstream sediment management through floodplain enhancements, stormwater diversions and upgraded storm drain outfalls
- Sub-phase 1B: construction of freshwater management measures to improve conveyance of dry weather and storm flows to reduce contact time with planned salt marsh restoration areas
- Sub-phase 1C: construction of salt marsh restoration area including tidal channels and grade control feature
- Adaptive Management and Monitoring
- (Future) Phase 2: Historical salt marsh restoration with the goal of meeting the compliance target of moving toward 84 acres of salt marsh restoration by 2035

This Biological Technical Report (BTR) details the inventory of biological resources documented to date and provides an assessment of potential effects on these resources during the implementation of Phase 1 of the Project. The purpose of the BTR is to summarize the general biological and aquatic resources within the BSA, assess the suitability of the BSA to support special-status species and sensitive habitat types, and identify potential effects associated with Phase 1.

The analysis provided in this document tiers off of the Los Peñasquitos Lagoon Enhancement Plan (LPLEP) Final Program Environmental Impact Report (Final PEIR), prepared by San Diego Coast District of CSP. The Final PEIR represents a series of conceptual actions developed for a program-level approach to restore salt marsh and other habitats historically present in Los Peñasquitos Lagoon (Lagoon), improve public access and public safety around the Lagoon's perimeter, and present a "natural system approach" for more effective

management of *Culex tarsalis*, a freshwater mosquito that breeds within the Lagoon and transmits brain encephalitis to human hosts. As such, the LPLEP is divided into three main project concepts (Lagoon Restoration and Enhancement, Public Access, and Vector Management) to facilitate planning, California Environmental Quality Act (CEQA) analysis, and eventual implementation. This BTR focuses on the Lagoon Restoration and Enhancement component of the PEIR and is limited to the Phase 1 project area. Therefore, this BTR has been prepared to provide analysis of the project relative to City of San Diego Land Development Code, but also conforms to the analysis provided in the PEIR.

The Project is a multi-benefit approach that includes addressing TMDL compliance goals, increased accumulation of sediment, disconnection from freshwater channels at existing storm drain outfalls to the Lagoon, and the creation of freshwater ponding and favorable mosquito breeding habitat. The Project addresses the targeted compliance goals of the Los Peñasquitos Watershed Management Area Sediment Total Maximum Daily Load (Sediment TMDL) that include reductions in sediment loading to the Lagoon to 1973 levels, progress towards restoration of historical salt marsh to 84 acres by 2035, and management of freshwater inputs to the Lagoon. Additionally, flood inundation from more frequent storm events in the developed floodways in Sorrento Valley and trash delivery into the lagoon through storm drain outfalls will be addressed. The Project is consistent with the recommended restoration alternative in the Updated Los Peñasquitos Lagoon Enhancement Plan (LPLF, 2016). The Project is also consistent with the State Park General Plan for Torrey Pines State Beach and State Reserve (California State Parks, 1984) that includes restoration of historical habitat salt marsh function, preservation of listed species, management of sediment entering the Lagoon, addressing water quality to the Lagoon, and providing trailhead improvements.

Sub-phase 1A includes sediment reduction measures in the upstream portion of the Project site that are located partially outside of the current stream channels and will use natural floodway processes to slow down storm flows and allow coarser sediments to drop out and be periodically removed. Three floodplain enhancement sediment management measures and enhancement to an existing drainage ditch are planned to address impacts from sediment accumulation in restored areas. Four storm drain outfalls that discharge into the Lagoon will also be upgraded during this phase. Sub-phase 1A also includes flood management measures in Sorrento Valley that integrate with the three floodplain enhancements and include storm flow diversions, new channels, and backflow control devices. These measures also reduce sediment loading by diverting storm flows to the floodplain enhancements compared to current direct discharges to the creeks and upper Lagoon. Upgrades to existing storm drains that discharge directly to the Lagoon are planned to address freshwater ponding that creates favorable mosquitos breeding habitat, sediment accumulation and trash entering the Lagoon, and impacts on habitat and water quality.

Sub-phase 1B includes the implementation of freshwater management. Sub-phase 1B components include a new, continuous channel that connects upstream creek flows to downstream tidal channels. Secondary channels will also be constructed to reduce the extent and duration of freshwater ponding in historical tidal and nontidal salt marsh habitats. These freshwater management measures are needed to establish a more resilient salt marsh habitat that has been impacted by increased freshwater inputs and inundation.

An estimated 49-acres of salt marsh restoration will be implemented primarily in Sub-phase 1C following the implementation of Sub-phases 1A and 1B. The salt marsh restoration will be located in the downstream western portion of the project footprint and includes the construction of new tidal channels, channel benching, and site grading to increase tidal inundation extent and frequency to the restored salt marsh. The restoration will remove accumulated sediments and non-native rye grass within the degraded salt marsh limits and revegetate these areas with native salt marsh vegetation.

The majority of the Project is located within the City's Multiple Species Conservation Plan (MSCP) Multiple Habitat Planning Area (MHPA). A number of biological and aquatic resources surveys have occurred within and/or adjacent to the BSA to support the Project or for other projects that have intersected with the BSA. This BTR incorporates and synthesizes all previous biological and aquatic resources surveys since 2015 that have been conducted in the BSA and/or for the Project. Survey results incorporated herein include:

- Light-footed Ridgway's rail (*Rallus obsoletus levipes*) surveys conducted in 2015 by John Konecny for the Sorrento Valley Double Track Project
- Least Bell's vireo (*Vireo bellii pusillus*) surveys conducted in 2015 by A. Hayworth for the Sorrento Valley Double Track Project
- Federally threatened and endangered wildlife species results compiled by Richard Zembal in 2015 for Los Penasquitos Lagoon
- Light-footed Ridgway's rail, California gnatcatcher (*Polioptila californica californica*), least Bell's vireo and/or Belding's savannah sparrow (*Passerculus sandwichensis beldingii*) surveys conducted in 2016, 2017 and 2019 by Schaefer Ecological Services (Schaefer)
- Jurisdictional delineation surveys, focused rare plant surveys, focused coastal California gnatcatcher surveys, focused least Bell's vireo surveys, focused southwestern willow flycatcher (*Empidonax traillii extimus*) surveys, and vegetation mapping surveys conducted in 2016 by Environmental Science Associates (ESA) with assistance from Blackhawk Environmental, Inc. (Blackhawk) for southwestern willow flycatcher
- Jurisdictional delineation surveys, focused rare plant surveys, and updated vegetation mapping surveys conducted in 2020 by Blackhawk and updated by Rocks Biological Consulting, Inc. (RBC) in 2022.
- Light-footed Ridgway's rail, Belding's savannah sparrow, least Bell's vireo, and southwestern willow flycatcher surveys conducted in 2022 by Blackhawk.

A total of 24 vegetation communities were mapped in the BSA following the updated vegetation mapping surveys conducted in 2020 by Blackhawk. The vegetative composition includes a mosaic of upland and lowland types. Most of these communities are considered sensitive by the City and the State of California. Sensitive lowland vegetation communities include alkali meadow, alkali seep, southern coastal salt marsh (degraded and non-degraded), coastal brackish marsh, coastal and valley freshwater marsh, southern arroyo willow riparian forest, southern willow scrub, mule fat scrub, open water, non-vegetated channel, saltpan/mudflats, and non-native riparian. Sensitive upland communities include maritime succulent scrub, Diegan coastal sage scrub, scrub oak chaparral, non-native grassland, and Torrey pine forest.

A total of 14 special-status plant species were found in the BSA following the focused rare plant surveys conducted in 2016 by ESA and in 2020 by Blackhawk and incidentally during other surveys in 2022. No federally and/or state-listed plant species have been observed, or are known to occur, within the BSA. The 14 special-status plant species [each with an assigned California Rare Plant Ranks (CRPR) and MSCP coverage where applicable] include:

- San Diego sagewort (*Artemisia palmeri*; CRPR 4.2)
- Del Mar mesa sand aster (*Corethrogyne filaginifolia* var. *linifolia*; CRPR 1B.1, MSCP-covered)
- Coast wallflower (*Erysimum ammophilum*; CRPR 1B.2, MSCP-covered)
- San Diego barrel cactus (*Ferocactus viridescens*; CRPR 2B.1, MSCP-covered)
- Sessileflower false goldenaster (*Heterotheca sessiflora* ssp. *sessiflora*; CRPR 1B.1)

- San Diego marsh-elder (*Iva hayesiana*; CRPR 2B.2)
- Southern California black walnut *(Juglans californica*; CRPR 4.2)
- Southwestern spiny rush (*Juncus acutus* ssp*. leopoldii*; CRPR 4.2)
- Sea dahlia (*Leptosyne maritima*; CRPR 2B.2)
- California boxthorn (*Lycium californicum*; CRPR 4.2)
- South Coast branching phacelia (*Phacelia ramosissima* var*. austrolitoralis*; CRPR 3.2)
- Torrey pine (*Pinus torreyana* ssp*. torreyana*; CRPR 1B.1, MSCP-covered)
- Nuttall's scrub oak (*Quercus dumosa*; CRPR 1B.1)
- Woolly seablite (*Suaeda taxifolia*; CRPR 4.2)

A total of 19 special-status wildlife species have been documented as occurring within the BSA. This total includes the following six federally and/or state-listed species:

- White-tailed kite *(Elanus leucurus;* State fully protected species*)*
- Belding's savannah sparrow (*Passerculus sandwichensis beldingi*; state-endangered, MSCP-covered)
- California brown pelican (*Pelecanus occidentalis californicus*; State fully protected species, MSCP-covered)
- Coastal California gnatcatcher (*Polioptila californica californica*; federally threatened, MSCP-covered)
- Light-footed Ridgway's rail (*Rallus obsoletus levipes*; federally endangered, state-endangered, state-fully protected, MSCP-covered)
- Least Bell's vireo (*Vireo bellii pusillus*; federally endangered, state-endangered, MSCP-covered)

The 13 additional special-status wildlife species known to occur within the BSA are:

- Monarch (*Danaus plexippus*)
- Saltmarsh (=wandering) skipper (*Panoquina errans*; MSCP-covered)
- Orange-throated whiptail (*Aspidoscelis hyperythra*; MSCP-covered)
- Red-diamond rattlesnake (*Crotalus ruber*; State Species of Special Concern)
- Clark's marsh wren (*Cistothorus palustris clarkae*; State Species of Special Concern)
- Cooper's hawk (*Accipiter cooperi*; MSCP-covered)
- Northern harrier (*Circus hudsonius*; MSCP-covered)
- Yellow-breasted chat (*Icteria virens*; State Species of Special Concern)
- White-faced ibis (*Plegadis chihi*; MSCP-covered)
- Black skimmer (*Rynchops niger*; State Species of Special Concern)
- Yellow warbler (*Setophaga petechia*; State Species of Special Concern)
- Elegant tern (*Thalasseus elegans*; MSCP-covered)
- Southern mule deer (*Odocoileus hemionus fuliginata*; MSCP-covered)

Formal jurisdictional assessments, surveys, verifications and/or updates were conducted in 2016, 2020, and 2022 to confirm the presence of jurisdictional wetlands/waters under purview of the U.S. Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), California Department of Fish and Wildlife (CDFW), California Coastal Commission (CCC) and the City of San Diego within the BSA. Jurisdictional areas for all five entities occur over a majority of the BSA, including all wetlands, riparian woodlands, marshlands, open

water, and tributary drainages that lie within the lowlands of the BSA. A total of 173.41 acres of aquatic resources in the BSA are under CDFW/CCC/City of San Diego jurisdiction. Of the total 173.41 acres of aquatic resources, 164.14 acres are also considered waters of the U.S. and State, under the jurisdiction of the USACE and RWQCB, respectively.

The Project has been designed to avoid adverse effects to native habitat to the maximum extent feasible and when completed, will restore the Project site to biologically superior conditions. During construction, Environmentally Sensitive Areas (ESAs) may be established around rare plant locations and/or non-degraded salt marsh patches in the field to further minimize or prevent removal of desirable vegetation. However, vegetation removal and/or trimming (including some special-status species) will occur during build-out of Project features. Permanent impacts to special-status wildlife species are not anticipated and any disturbance is expected to be temporary in nature. Moreover, permanent effects will largely result in a restored wetland that is beneficial to both common and special-status plant and wildlife species known to occur on and/or adjacent to the BSA. Cumulatively adverse impacts to special-status species and sensitive natural communities are not anticipated as avoidance, minimization, and mitigation will offset permanent and temporary impacts that may result from construction. The overall outcome of the Project is the restoration of degraded coastal wetland habitat with greater value and functionality.

The Project involves a large-scale restoration effort that will significantly improve the currently degraded wetland system and benefit a wide variety of flora and fauna, including a suite of special-status species and City MSCP-covered species. These species are considered adequately covered by the MSCP. The Project is consistent with MSCP-allowed uses, conditions of coverage, and management directives. Therefore, potential direct and indirect impacts to MSCP covered species, including those that are also state and/or federally listed plant and wildlife species, are considered less than significant.

The Project will result in significant permanent impacts to 6.77 acres of City regulated wetlands (requiring 19.57 acres of mitigation, based on ratios between 2:1 and 4:1) as a result of permanent infrastructure with long-term maintenance and significant temporary impacts to 62.30 acres of City regulated wetlands as a result of restoration activities (requiring mitigation at a 1:1 ratio). These impacts are reduced to less than significant through implementation of the Restoration Plan/Habitat Mitigation and Monitoring Plan (HMMP) resulting in wetlands re-establishment of 3.39 acres, enhancement of 17.35 acres, and restoration of 65.53 acres; resulting in an excess of 4.40 acres of wetlands mitigation.

The Project will also result in significant permanent impacts to 3.52 acres of sensitive upland vegetation from conversion to wetlands and temporary impacts to 6.78 acres of sensitive upland vegetation as a result of restoration activities (both impacts require mitigation at a 1:1 ratio). These impacts are reduced to less than significant through implementation of the Restoration Plan/HMMP resulting in restoration of 7.09 acres of coastal sage scrub and additional upland mitigation (bank credits, Habitat Acquisition Fund contribution, or additional onsite restoration) totaling 3.46 acres of upland habitat(s).

Type conversion of vegetation will also occur as a component of the Project and will result in the net loss of 2.1 acres of riparian habitat and 4.7 acres of non-native grassland. Riparian and non-native grassland habitat will be mitigated through the net gain of other wetland communities.

The majority of the restoration areas will be restored concurrent with project implementation; those areas that are subject to delays (e.g., access roads, staging/stockpile areas) are relatively small, often narrow corridors which in the context of available habitat in the Lagoon are not expected to result in significant adverse impacts to sensitive wildlife. Direct and indirect impacts to jurisdictional resources would be mitigated

to less than significant with implementation of the Restoration Plan/HMMP resulting in no-net-loss of jurisdictional area and an increase in ecological functions. Temporal loss of limited areas that include special-status plant species are expected to occur but would be less than significant with onsite restoration activities. Implementation of the Restoration Plan/ HMMP will require maintenance, monitoring, and reporting for a period of approximately five years or until success criteria thresholds are met.

Avoidance and Minimization Measures (AMMs) AMM-BIO 1, AMM-BIO-2, and AMM-BIO 3 and Mitigation Measures (MMs) MM-BIO 1, MM-BIO 2, MM-BIO 3, MM-BIO 4, and MM-BIO 5 are proposed to ensure that the Project does not result in unintentional impacts and all effects of the Project are mitigated in accordance with the LPLEP Final Program EIR.

1.0 Project Description

This Biological Technical Report (BTR) was prepared by Blackhawk Environmental, Inc. (Blackhawk), in accordance with the City of San Diego's (City's) Biology Guidelines (2018) and is intended to satisfy requirements set forth in the City's Environmentally Sensitive Lands Regulations (ESL) and San Diego Land Development Code (LDC). The studies detailed herein were conducted to identify the locations of sensitive natural resources, identify the Potential for Occurrence (PFO) of special-status plant and wildlife species, and develop mitigation measures to offset potential direct, indirect, and cumulative impacts to any such resources on and/or adjacent to the Biological Study Area (BSA). Additionally, this BTR serves to illustrate the baseline conditions for which the determination of impacts and mitigation under the California Environmental Quality Act (CEQA) should be analyzed during the environmental review process.

1.1 Project Setting and Overview

The Los Peñasquitos Lagoon Restoration Phase 1 Project (Project) is located within the upper portion of Los Peñasquitos Lagoon (Lagoon) and the upstream riparian corridor within Sorrento Valley in the City of San Diego, San Diego County, California (see Figure 1-1). The Lagoon is part of the Torrey Pines State Natural Reserve (TPSNR) located in coastal north county San Diego and is owned and managed by California State Parks (CSP). The Lagoon is a 565-acre coastal estuary that receives drainage from an approximately 59,212-acre watershed comprising three primary sub-drainages: Carmel Valley, Los Peñasquitos Canyon, and Carroll Canyon (see Figure 1-2). The Lagoon lies primarily within the jurisdictional boundary of the City, but the Cities of Del Mar, Poway, and the County of San Diego are also included in the Lagoon watershed (see Figure 1-2).

The Lagoon and its associated uplands provide important habitat for five listed bird species and 35 sensitive and rare plant species. The Lagoon also serves as an important refuge for migratory birds using the Pacific Flyway and is the closest coastal estuary to the La Jolla State Marine Conservation Area and San Diego-Scripps State Marine Conservation Area. The Lagoon is almost entirely within the City of San Diego's Multi-Habitat Planning Area (MHPA) (see Figure 1-3). The MHPA is a regional preserve area designated by a Habitat Conservation Plan called the Multiple Species Conservation Program (MSCP).

Primary regional access to the BSA is provided by Interstate 5, which runs north-south and is located east of the BSA. Sub-regional access is provided via Roselle Street and Flintkote Avenue. Access to the Lagoon is limited to protect rare species and habitats in accordance with the Lagoon's status as a State Natural Preserve. Passive recreation along the Lagoon boundaries is permitted. Current public access is available along trails, as well as roadways that border the Lagoon including Highway 101, Carmel Valley Road, Sorrento Valley Road, Roselle/Flintkote Road, and the Marsh Trail.

The BSA is characterized topographically by steeply sloping bluffs on the west, south, and north boundaries and a narrow, moderately-sloped floodplain. The bluffs reach up to 450 feet NAVD while the floodplain ranges in elevation from 8 to 26 feet NAVD. Carroll Canyon Creek is contained in a concrete channel until just after the Interstate 5 overpass, where it transitions to a soft-bottom channel. As shown in Figure 1-4, Los Peñasquitos Creek joins Carroll Canyon Creek where Sorrento Valley turns north and separates from the railroad alignment. Beyond the confluence, the channel continues into property owned by the California

Coastal Conservancy and ends in a "pilot channel". Due to sediment accumulation, the end of the constructed "pilot channel," has become discontinuous and is not connected to downstream channels. The end point of the "pilot channel" is identified as the "sediment plug." This creates an area of wide sheet flows and disconnected former creek channels (see Figure 1-4). At the confluence of Carmel Creek and the Lagoon, the channel enters a channel downstream of the Interstate 5 bridge culvert and then empties into a heavily vegetated freshwater marsh area. Persistent dry weather flows occur in all three creeks entering the Lagoon.

It should be noted that the Project includes an option for ongoing disposal of excavated/dredged sediment from Project grading and sediment management maintenance on Torrey Pines State Beach for purposes of beach sand replenishment. The area of potential beach sand disposal is shown on Figure 1-4 and other project description figures but is not included in the BSA or other portions of this BTR. The beach sand placement portion of the Project will be analyzed in a separate Addendum to this BTR – Lagoon and Marine Survey and Essential Fish Habitat Assessment.

Figure 1-1: Project Location Map

Figure 1-2: Los Peñasquitos Watershed & Jurisdictional Boundaries

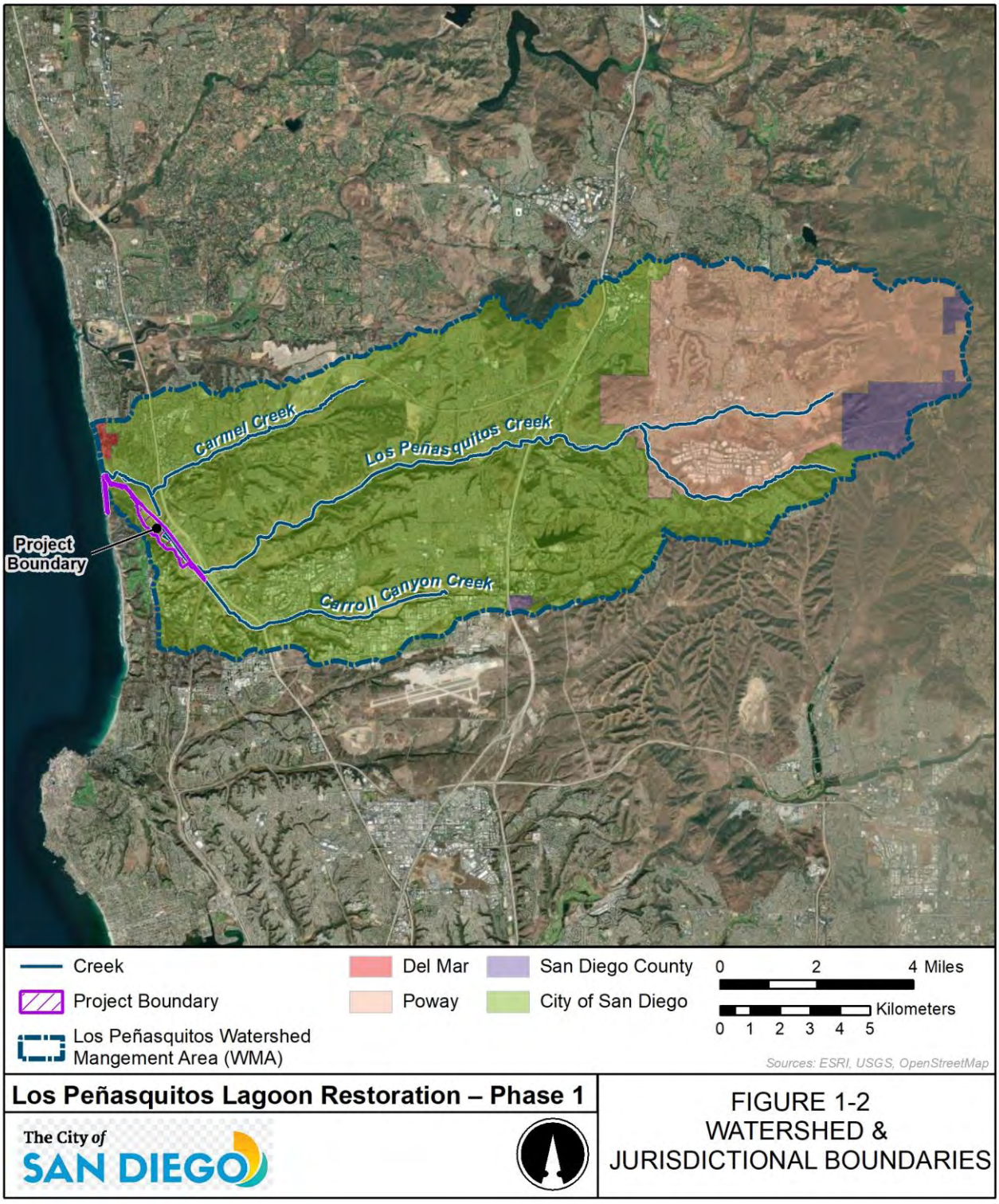


Figure 1-3: MHPA Boundary

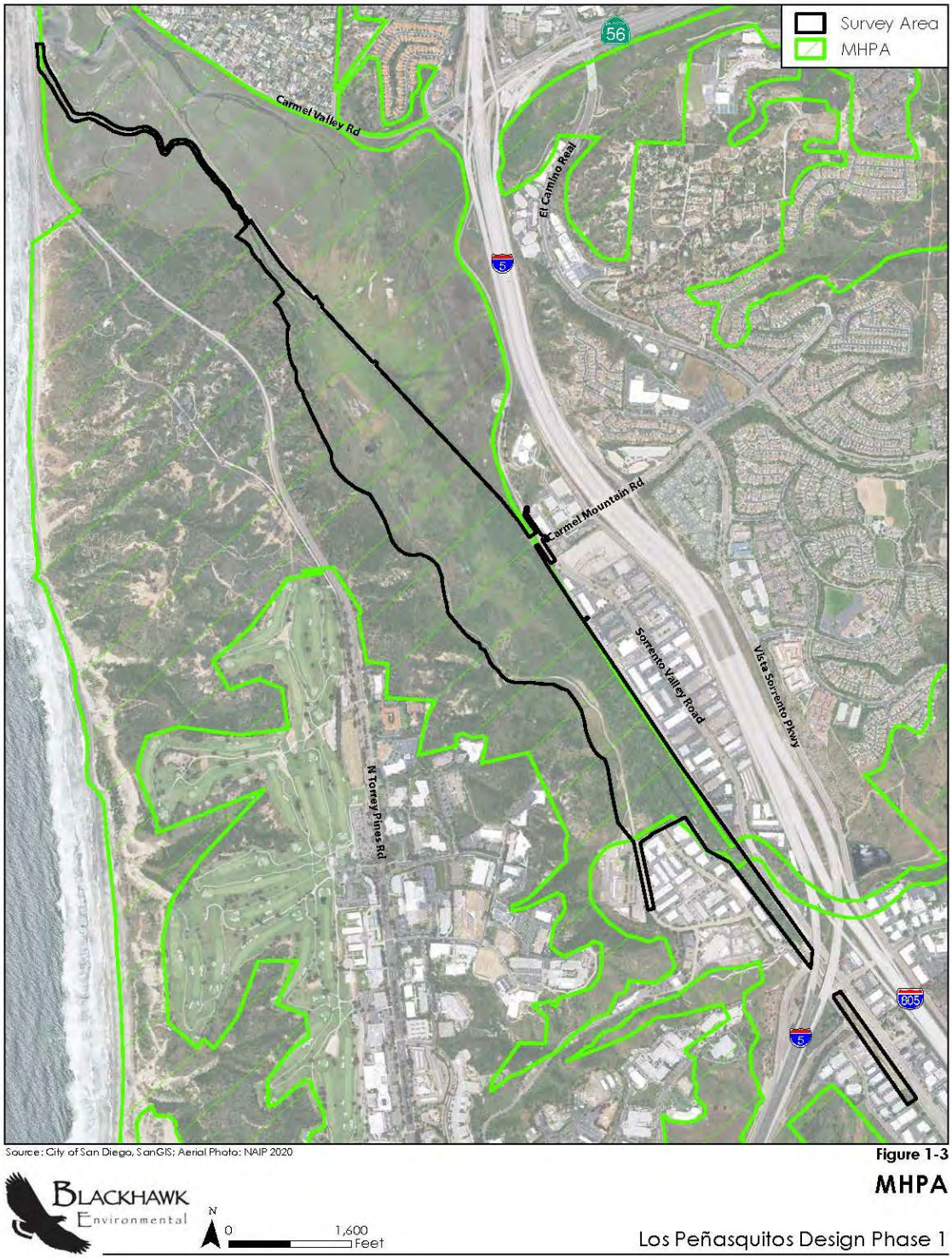
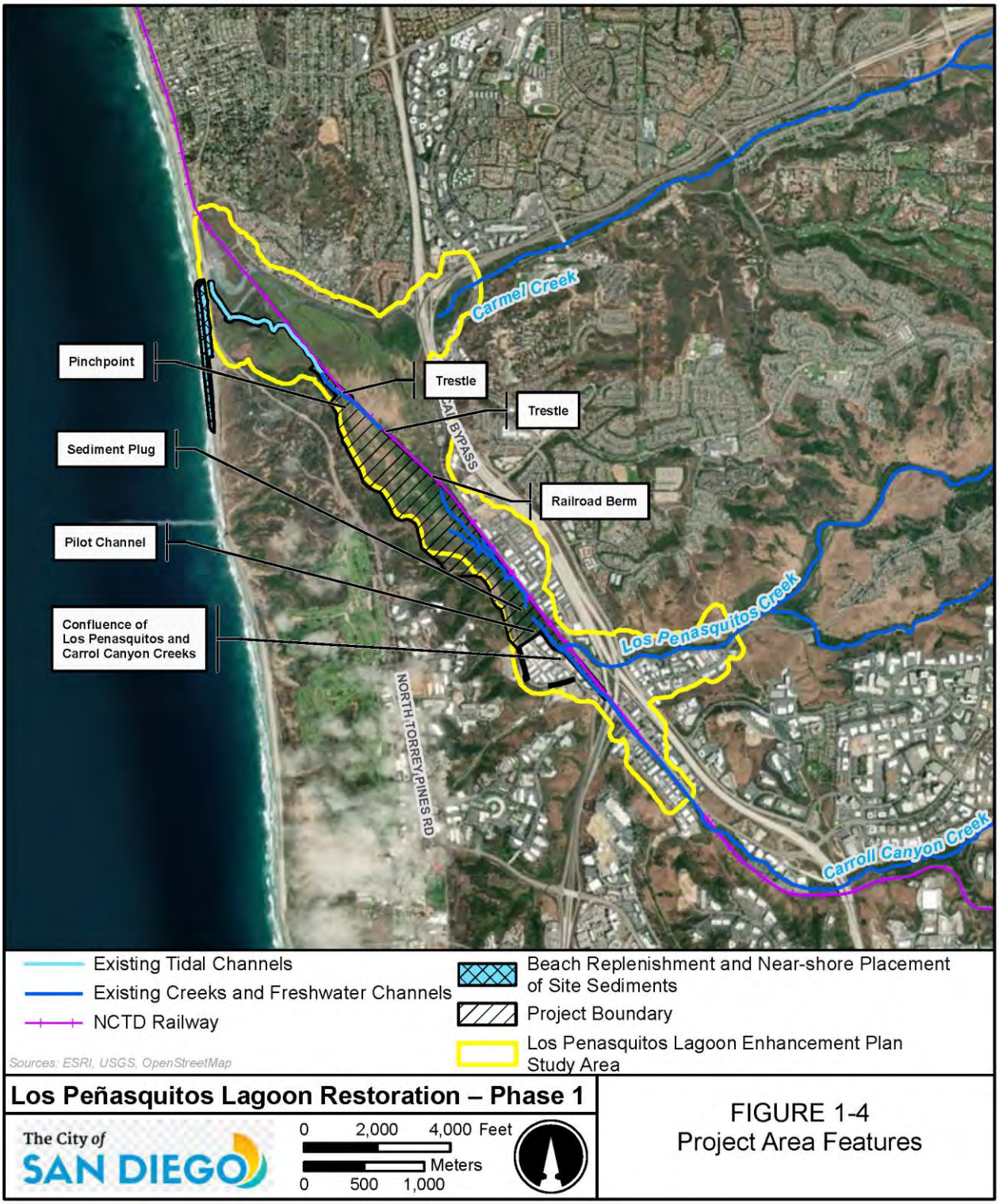
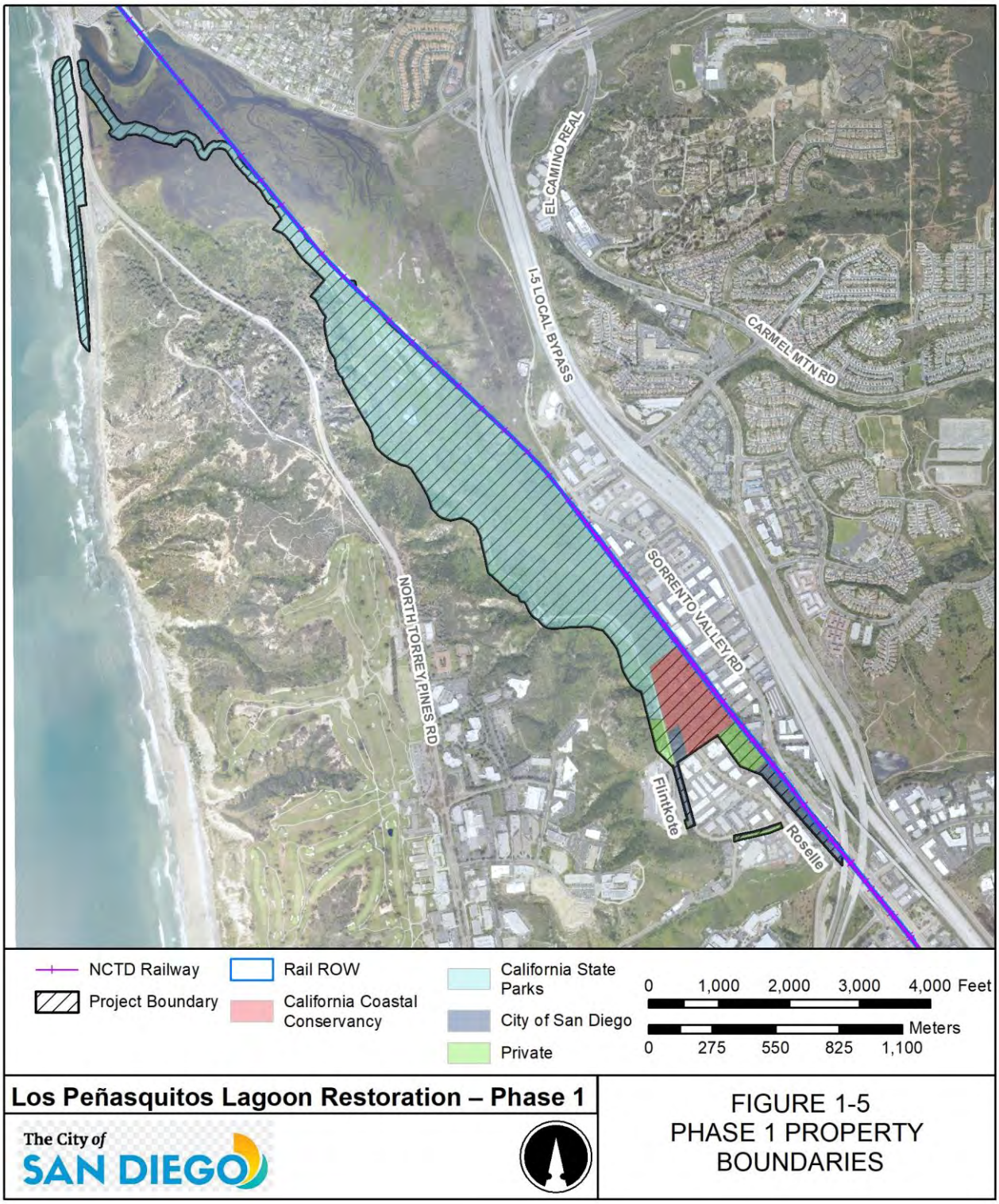


Figure 1-4: Project Area Features - Existing Creeks and Channels



As shown in Figure 1-5, the Project footprint spans several parcels owned by multiple landowners including the City, CCC, CSP, and private property owners. The restoration and freshwater management elements of the Project are within the Lagoon that is part of the TPSNR and is owned and managed by CSP. The sediment management components and riparian habitat enhancements are located within the parcels owned by the City, California Coastal Conservancy, private property owners, and CSP that are outside of the TPSNR but within the LPLEP.

Figure 1-5: BSA Property Ownership



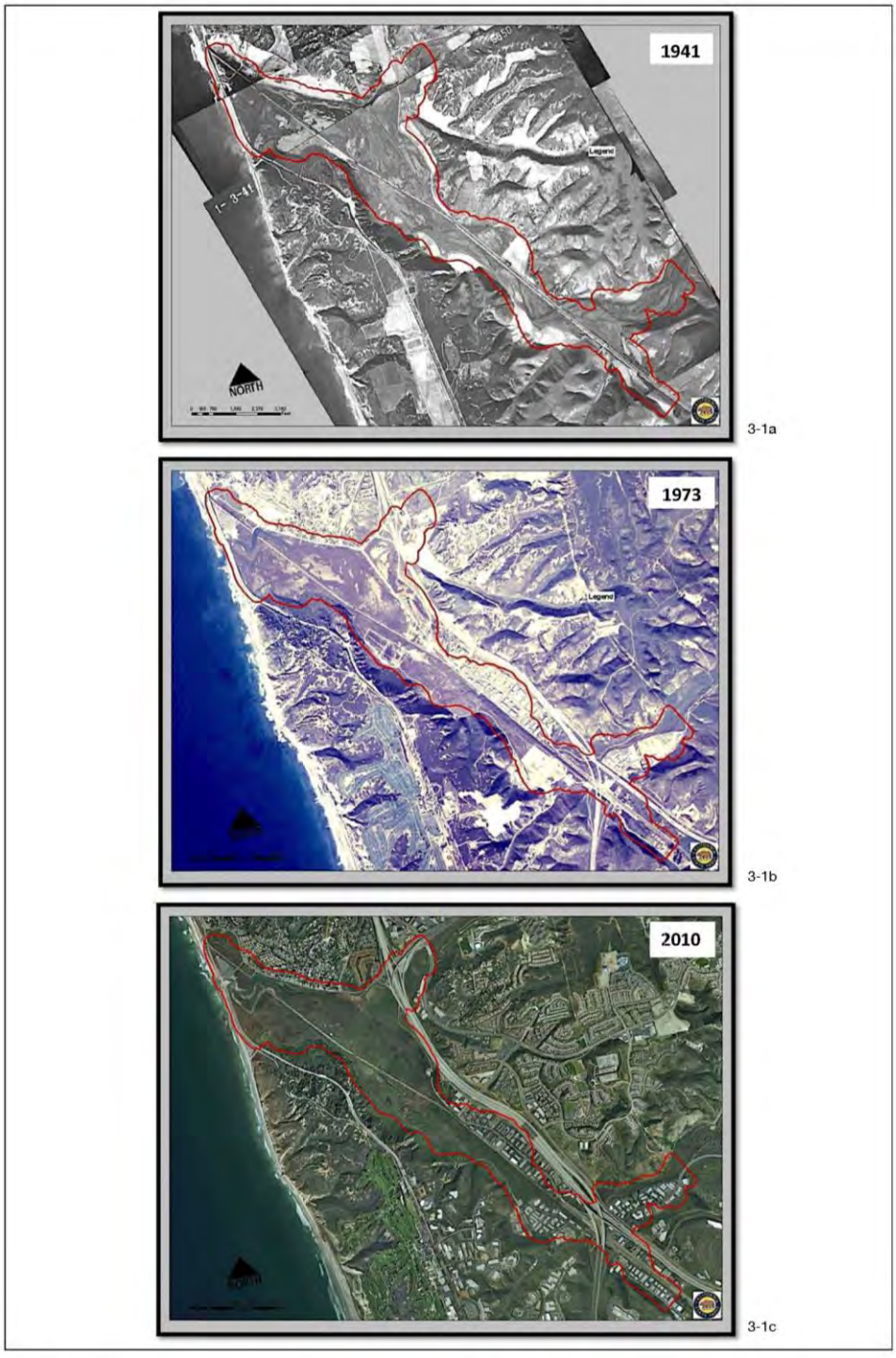
1.2 Historical Salt Marsh, Sediment Loading, and Freshwater Management

In the late 1800s, the Lagoon was mostly salt marsh in the western reach with an extensive salt pan in the middle, which fluctuated in size from year to year (SFEI 2014- see Figure 1-6). The upper portion of the Lagoon was comprised of tidal and non-tidal salt marsh, along with salt pannes in areas of natural depressions. While land use change in the Lagoon's watershed dates back to 1832, primary drivers for the Lagoon's impairment include transportation infrastructure and urban development. Two railway alignments placed within the Lagoon in 1888 and 1925 provide the earliest modifications to the Lagoon's hydrology, effectively reducing its tidal prism and ability to flush storm water runoff due to the blocking of historic tidal channels and marsh plain. In 1932 the Lagoon's inlet was permanently relocated south and fixed under a bridge span with the construction of Highway 101. As a result of these three structures, the Lagoon experienced more frequent and prolonged inlet closures. The construction of transportation infrastructure both within and adjacent to the Lagoon have altered it's natural hydrology primarily in the form of longer retention of floodwaters within the Lagoon and loss of tidal prism which plays a key role in tidal mixing, flushing impounded waters, and maintaining an open lagoon inlet.

While predominantly rural through the 1960s, the areas surrounding the Lagoon and its watershed developed rapidly. As a result, open space areas were lost with undeveloped land decreasing from 87 to 57 percent between 1966 and 1999 (White and Greer 2006) and with 46 percent of the watershed classified as impervious by 2000 (Tetra Tech 2010). Flood plains located at the bottom of each sub-watershed, which had served as natural deposition zones for sediment during storm events, were greatly constrained and, in some locations, converted to development as shown in Figure 1-6. In addition, all three tributaries were channelized through the lower portions of the watershed, facilitating increased peak flows and sediment transport to the Lagoon. As a result, sediment that would normally drop out in the floodplain now entered into the Lagoon, sometimes in the form of large sediment plumes that raised elevations in these areas above tidal influence and covered saline soils preferred by halophytic plants with deep alluvial fans.

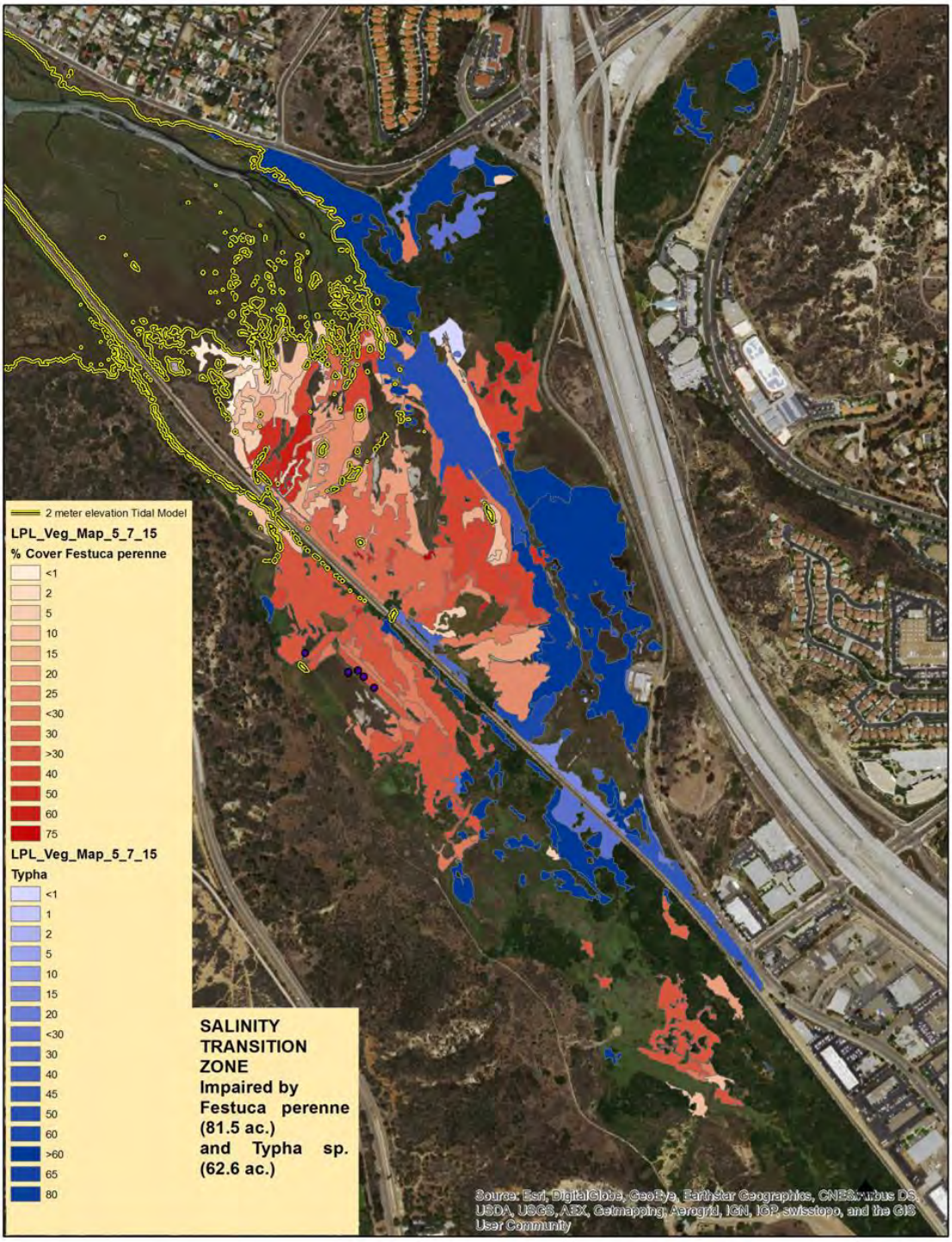
Since 1996, the Lagoon has received year-round freshwater inputs as all three tributaries became perennial as a byproduct of urbanization of the watershed (Williams et al 1997). Increased sediment deposition within the Lagoon coupled with year-round freshwater intrusion has converted historic salt marsh into conversion zones in the upper Lagoon as shown in Figure 1-7 composed of degraded salt marsh dominated by *Festuca perennis* (non-native Italian rye, shown in red in Figure 1-7) and new freshwater marsh dominated by *Typha* (cattails, shown in blue in Figure 1-7). These zones transition into remaining salt marsh habitat to the west that is shown as the current limit of tidal influence (shown in yellow in Figure 1-7). Furthermore, the degradation and impairment of the Lagoon have greatly reduced its ability to support ecological functions such as bird foraging and fish refugia. As a result, the Lagoon has been placed on the Clean Water Act Section 303(d) list of impaired water bodies.

Figure 1-6: Los Peñasquitos Watershed Land Uses over Time



Source: LPLF Updated Enhancement Plan, 2016

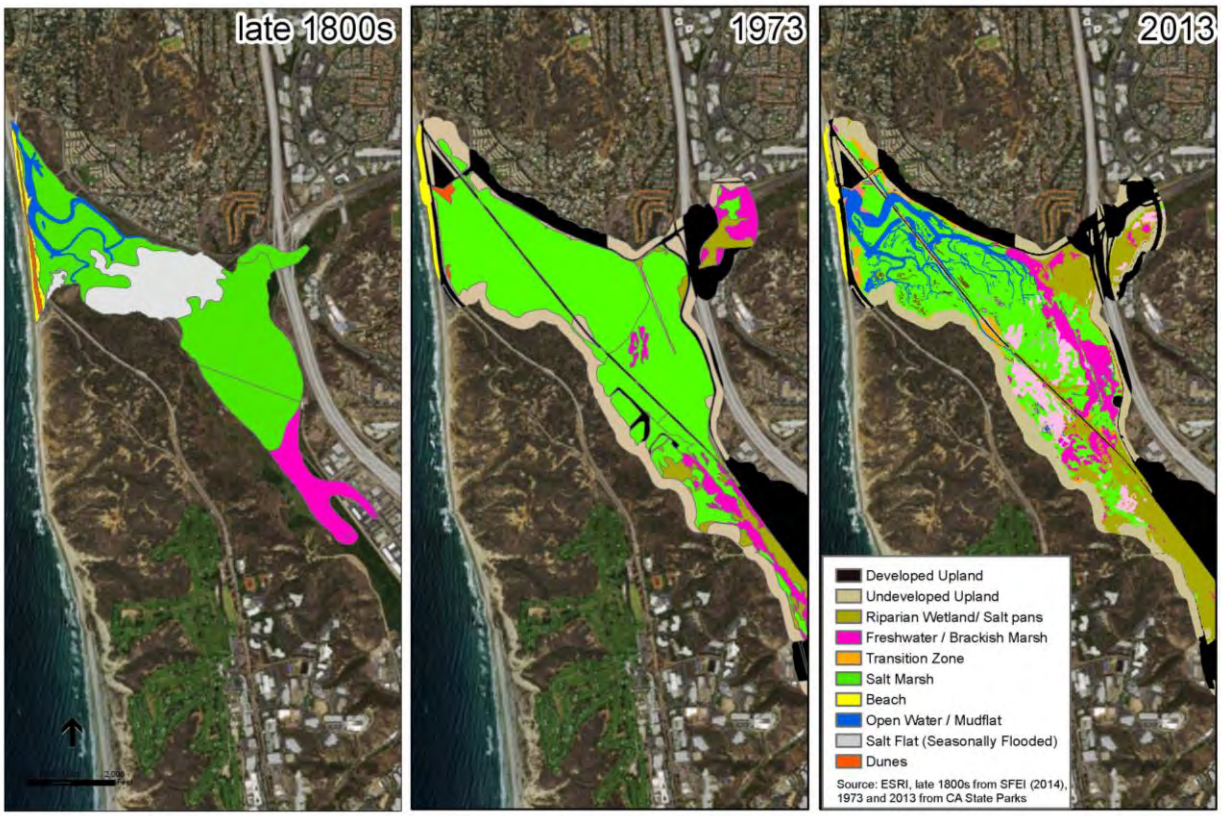
Figure 1-7: Results of Vegetation Survey Conducted 2015



Source: LPLF Updated Enhancement Plan, 2016

Human activities and urban development have become a permanent part of the Lagoon's ecology and has altered native landscapes, degraded water quality, and modified hydrology and geomorphology. As shown in Figure 1-8, based on a 2014 analysis comparing historical aerial photography, the Lagoon has lost over half of the historic salt marsh habitats with acreage reduced from approximately 430 acres in 1973 to approximately 262 acres in 2010. Increased sedimentation rates from the watershed and hydrologic modification of its three tributaries have been the key drivers for habitat conversion in the eastern portion of the Lagoon. Non-tidal salt marsh, salt flat, and salt panne that were historically present in the upper Lagoon have been replaced by advancing wetland conversion zones (see Figure 1-8).

Figure 1-8: Historical Habitat Mapping



Source: LPLF Updated Enhancement Plan, 2016

The City, along with Los Peñasquitos Lagoon Foundation (LPLF), CSP, and other key stakeholder groups, has been working to align watershed improvements to the restoration and enhancement priorities for the Lagoon. These groups participated in several watershed-based planning efforts for the Los Peñasquitos watershed that included the third-party Los Peñasquitos Watershed Management Area Sediment Total Maximum Daily Load (Sediment TMDL) that is enforced through Order No. R9-2013-0001, as amended by Order Nos. R9-2015-0001 and R9-2015-0100, National Pollutant Discharge Elimination System (NPDES) Permit and Waste Discharge Requirements for Discharges from the Municipal Separate Storm Sewer Systems (MS4s) draining the watersheds within the San Diego Region. More recently, the City, other Los Peñasquitos WMA co-permittees, LPLF, and other stakeholders worked collaboratively in the development of the Los Peñasquitos

WMA Water Quality Improvement Plan (WQIP). The WQIP identifies and prioritizes the water quality conditions and the watershed measures that will be taken to address these priority conditions. During these planning efforts, it was determined that restoration of the Lagoon's historic habitats (e.g., salt marsh) and ecosystem services (e.g., beneficial uses identified in the San Diego Basin Plan) would serve a primary compliance target, in conjunction with load reductions of sediment and other constituents of concern. The WQIP also included reference to the Updated Los Peñasquitos Lagoon Enhancement Plan (LPLEP) (LPLEP, 2016).

The Updated LPLEP was built on the tradition of bringing together sound science and coastal stewardship through stakeholder involvement through a series of community and stakeholder workshops held in 2012. The outcome was the refinement of the LPLEP goals, development and assessment of opportunities and constraints, and the development of a phased approach to meeting the goals and objectives for the Lagoon restoration. The Project is consistent with the goals and objectives of the Updated LPEP and is a major part of the implementation of Phase I of the Lagoon restoration. The Project is also consistent with the State Park General Plan for Torrey Pines State Beach and State Reserve (California State Parks, 1984) that includes restoration of historical salt marsh habitat function, preservation of listed species, management of sediment entering the lagoon using floodplains, and sediment facilities upstream of the Reserve, addressing water quality from industrial development adjacent to the Lagoon and providing trailhead improvements and educational opportunities.

1.3 Project Need and Purpose

The elements of the Project have been developed to address impairment of Lagoon function, loss of native habitats, and degraded ecosystem services caused by urbanization that include beneficial uses identified in the San Diego Basin Plan. Without the implementation of the Project, these existing conditions will result in further impairment of the Lagoon and compliance targets and timelines of the Sediment TMDL will not be met. Existing conditions and Project elements are summarized as follows:

Conversion and Loss of Historical Salt Marsh: Numerous lines of evidence implicate urbanization of the Lagoon's watershed and its boundaries, as well as transportation infrastructure (e.g., railway alignment), as being major contributors to the loss of historic habitats within the Lagoon. Based on a 2014 analysis comparing historical aerial photography, the Lagoon has lost over half of the historic salt marsh habitats with acreage reduced from approximately 430 acres in 1973 to approximately 262 acres in 2010 as described in the 2016 Updated Los Peñasquitos Lagoon Enhancement Plan (LPLEP, 2016). Restoration of salt marsh has been identified as a priority under the updated LPLEP and a compliance target of the Lagoon's Sediment TMDL, which requires restoration towards 84 acres of tidal and non-tidal salt marsh by 2035. The Project will restore approximately 49 acres of salt marsh habitat within areas of degraded salt marsh where non-native rye grass has been established and has replaced historical salt marsh vegetation. **Without the Project, the conversion of historical salt marsh to degraded salt marsh and freshwater habitat will continue**.

Sediment Loading and Impacts to Wetland Habitats: Increased sedimentation rates from the watershed and hydrologic modification of its three tributaries have been the key drivers for habitat conversion in the eastern portion of the Lagoon. Non-tidal salt marsh, salt flat, and salt panne that were historically present in the upper Lagoon have been replaced by advancing wetland conversion zones (LPLEP, 2016). Urbanization of the watershed and loss of historic floodplain has led to increased sediment loading within the Lagoon and within lower reaches of riparian corridors that connect the upper Lagoon to its sub-watersheds. Impacts related to increased coarser (sandy) sediment input include increased elevations in the upper Lagoon that

impede tidal influence, buried native plants, and reduced salinity of surface soils resulting in degraded and converted habitats. Increased coarse sediment loading downstream of the confluence of Carroll Canyon and Los Peñasquitos Creeks has degraded the riparian habitat, accelerated establishment of invasive plant species in the understory, and contributed to the density and dominance of willows in the overstory as this species establishes quickly in disturbed soils near waterways. Specific sediment load reductions to the Lagoon are targeted by the Sediment TMDL. Sediment load reduction targets and timelines are further defined in the Los Peñasquitos Watershed Management Area (WMA) Water Quality Improvement Plan (WQIP) prepared by the watershed agencies and stakeholders in accordance with the MS4 Permit. The Project includes measures to reduce sediment loading into the Lagoon from the upstream tributaries of Carrol Canyon and Los Peñasquitos. These measures include the construction of three floodplain enhancements that use restored floodplain processes upstream of the TPSNR using a similar approach to an existing permitted sediment measure operating on Los Peñasquitos Creek. Additional measures include stormwater diversions and upgrades to storm drain outfalls that include sediment and trash interceptor devices. **Without the proposed sediment management and riparian enhancement elements of the Project, impacts to water quality and the beneficial uses for not only the Carroll Canyon Creek but to the Lagoon will continue. The success of the planned restoration efforts depends on addressing the sediment loading and accumulation issues. These Project design features are needed for the long-term sustainability of the restoration of the Lagoon**.

Increased Freshwater Inputs: Once seasonal, all three of the Lagoon's tributaries have converted to perennial dry weather flows due in most part to dry weather inputs of freshwater from the developed portions of the watershed. Increased storm flows have also been observed from urbanization. Stormwater from Los Peñasquitos and Carroll Canyon Creeks flows to the "pilot channel", overtops the channel, and flows as sheet flow over the marsh plain as no continuous channel currently exists. As a result of both persistent dry weather flows and increased storm event inundation extent and duration, the upper Lagoon that includes Phase 1 has lost most of its historic habitats including salt marsh, salt panne, and salt flat. With respect to salt marsh, most of the upper Lagoon converted rapidly to freshwater marsh and degraded salt marsh that includes non-native grasses as reductions in soil salinity and prolonged periods of inundation by freshwater precluded the dominance of halophytes. Reducing freshwater dry-weather inputs to the Lagoon is identified in the WQIP as a priority action due to its effects on salt marsh habitat and public safety. The Project will facilitate a more effective conveyance of freshwater through the Lagoon system through the removal of the "plug" at the end of the "pilot channel" and the creation of a continuous freshwater management channel from the confluence of the Los Peñasquitos and Carroll Canyon Creeks to the downstream tidal channel. A grade control feature is also planned around the upstream extent of the planned salt marsh restoration to divert frequent lower-intensity storm events away from the restoration to reduce ponding and retention times, similar in function to the existing berm around the former wastewater pond. Freshwater inundation within the restored salt marsh will occur under reduced retention times during storm events from the downstream end of the freshwater channel close to where it connects to the tidal channel. **The proposed freshwater management is imperative to the overall success of the long-term Lagoon restoration. Providing an effective means of conveying freshwater through the system will reduce the potential for freshwater ponding and further conversion of salt marsh to degraded salt marsh and freshwater marsh habitats. These Project design features are needed for the long-term sustainability and resilience of the salt marsh restoration.**

Invasive Plants and Impact to Freshwater and Salt Marsh Habitats: Increased sediment loading and persistent freshwater flows from the urbanized watershed have resulted in more favorable conditions for the establishment of invasive plant species within the riparian, freshwater, and salt marsh habitats of the upper Lagoon. More frequent higher-intensity storms have also increased the migration of invasive plant seeds and seedlings to the upper Lagoon. The Project includes removal of invasive plant species, habitat enhancement and rehabilitation within the riparian and freshwater marsh habitats, and restoration of the historical salt marsh. Removal of invasive plant species includes removal of invasive pampas grass (*Cortaderia selloana*), *Arundo*, and Italian rye grass stands through select removal, clearing, grubbing, where wider spread, and replacement with native vegetation. **The proposed removal of invasive plants and the enhancement, rehabilitation, and restoration of riparian, freshwater, and salt marsh habitats will improve the quality and overall functionality of the upper Lagoon ecosystem. Without these measures, the wetland habitats will continue to degrade and the extent and dominance of invasive plant species will increase, leading to the loss of habitat functionality and value to the species that rely on this habitat that include listed species.**

Impacts from Trash to the Lagoon: Storm drains with outfalls that flow directly into the BSA have resulted in the transportation and build up of sediment and trash into the Lagoon. The storm drain outfalls have also been subject to sediment build up and scouring, leading to freshwater ponding and stagnation at storm drain outfalls and resulting in favorable mosquito breeding habitat (see next bullet). Storm drain outfalls that directly discharge to the Project area will be upgraded to remove accumulated sediment and to install erosion control to address scouring. Sediment and trash reduction devices will also be installed upstream of the outfall. The planned three-floodplain enhancements will remove trash from stormwater flows through the installation of trash-screening devises on the grade control structures. **Without these storm-drain outfall upgrades and floodplain enhancements, sediment and trash will continue to enter the upper Lagoon, impacting the sensitive habitat. Without addressing the ponding of freshwater at these outfalls, favorable mosquito breeding habitat will remain**.

Increased Mosquito Breeding Habitat: Although not a requirement of the TMDL or the focus of the restoration efforts, freshwater management efforts to restore historical salt marsh will also address increased breeding habitat for freshwater mosquitos that include *Culex tarsalis*, a mosquito known to transmit West Nile virus to human hosts. Favorable mosquito breeding habitat results from increased areas of ponded freshwater in the upper Lagoon, within storm drain outfalls, disconnected segments of creek channels, and depressions in areas that are not well drained. Breeding habitat for *C. tarsalis* greatly expands during periods when the Lagoon inlet is closed due to daily inputs of freshwater that dilute saline waters impounded within Lagoon channels and across the marsh plain. Vector control is the responsibility of the County of San Diego Department of Environmental Health and integrating elements that address mosquito breeding will most likely require partnerships and related agreements to integrate vector management into the Project for elements that extend beyond TMDL compliance.

Flooding in Sorrento Valley: Hydromodification due to urbanization and land use change within the contributing watersheds to the Lagoon has increased sediment delivery and flows to the Lagoon and has increased the vulnerability of flooding for surrounding urban and industrial developments. Historic sediment deposition within the downstream portions of Carroll Canyon Creek and downstream of the confluence of Carroll Canyon and Los Peñasquitos Creeks have resulted in an increase of sediment buildup in the surrounding area and reduced flood carrying capacity of the channel and flood storage potential of the adjacent floodplains. Areas adjacent to the stormwater management channels experience periodic flooding during larger storm events due to accumulation of sediment and vegetation within and downstream of these

channels, and when flows exceed the design capacity of these channels. Flood management measures that include stormwater diversions, backflow devices and channel maintenance integrated with the Project sediment and freshwater management measures will reduce flood inundation levels during more frequent storm events. **Without the Project, flooding during more frequent storm events will continue along Roselle Avenue, Dunhill Road, and Estuary Way and potentially affect businesses along these roadways. Due to the existing design capacity of the stormwater management channel, flooding may occur when storm events exceed the channel capacity. Continued maintenance of the channel is needed to maintain the design capacity.**

Inlet Closures and Maintenance: The construction of transportation infrastructure both within and adjacent to the Lagoon have altered its natural hydrology primarily in the form of longer retention of floodwaters within the Lagoon and loss of tidal prism which plays a key role in tidal mixing, flushing impounded waters, and maintaining an open lagoon inlet. The current railway alignment runs through the middle of the Lagoon and has effectively divided it into two separate basins (western and eastern) due to the lack of culverts and reduced number of bridge spans. The North Torrey Pines Road section of Highway 101 further modified lagoon hydrology and altered inlet dynamics by moving the Lagoon mouth from its historic location in the north to its current location under the lower bridge. As a result, inlet closures, truncated tides, and extended periods of flooding occur more frequently. While transportation infrastructure contributes to these existing conditions, modifications to existing transportation infrastructure is not part of the Project.

1.4 Project Components

Phase 1 is part of a two-phase Project as shown in Figure 1-9. Phases are derived from the selected alternative in the Updated Los Peñasquitos Lagoon Enhancement Plan (LPLEP, 2016). Phase 1 and Phase 2 lagoon enhancement projects will involve distinct areas of the upper Lagoon. Phase 1 lagoon enhancement will take place southwest of the railroad berm as shown in Figure 1-9. It will include restoration of historic salt marsh, sediment reduction measures, and freshwater management. Phase 1 will restore approximately 49 acres of salt marsh habitat with an estimated construction completion timeline of 2024-2028 followed by 5 years of adaptive management and monitoring. Phase 2 is a future phase located to the northeast (opposite side to Phase 1) of the railroad embankment. The Phase 2 lagoon enhancement design will be based on the adaptive management and monitoring of the Phase 1 project and on further assessment of the effects of sea level rise. The finding of the adaptive management of Phase 1 will inform the approach to meet the compliance target of moving toward 84 acres of salt marsh restoration by 2035. Sea level rise will convert existing transition zones to tidal salt marsh habitats in the upper Lagoon as the extent of tidal influence expands to these areas of degraded and converted historical non-tidal salt marsh (LPLEP, 2016). The Los Peñasquitos Lagoon Restoration Phase 1 Project is herein referred to as the Project.

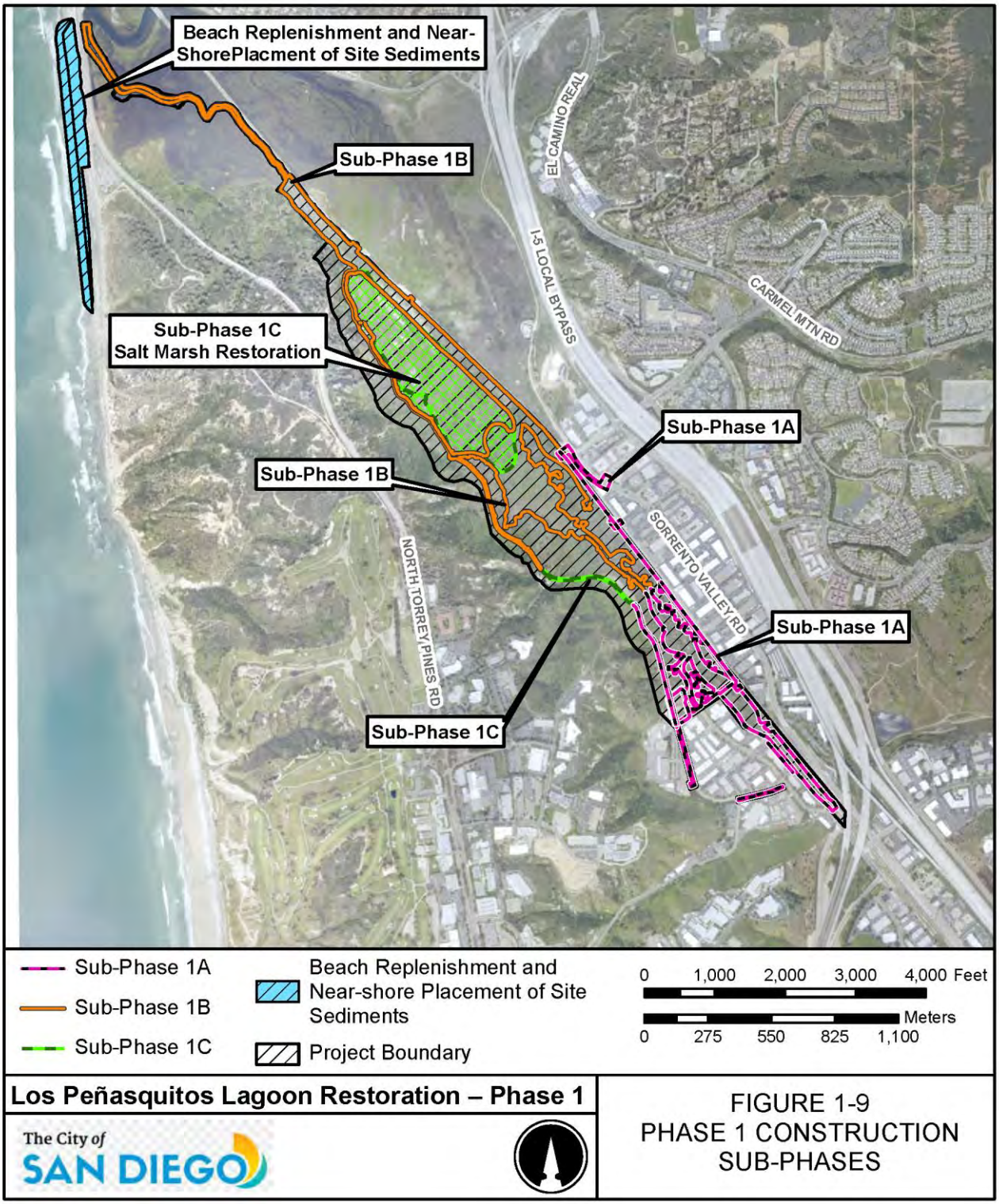
The Project addresses the compliance targets of the Sediment TMDL including reductions in sediment loading to the Lagoon to 1973 levels, restoration of historical salt marsh toward 84 acres by 2035, and management of freshwater inputs to the Lagoon. Each target addresses existing conditions as summarized in Section 1.3. The Project will achieve TMDL compliance targets by addressing these site conditions that have led to the Lagoon impairment.

The City is taking a multi-benefit approach to the Project. This includes not only addressing the TMDL compliance goals, but also addressing the increased predominance of invasive plants species that reduce the habitat function and value, the increased accumulation of sediment, and disconnection from freshwater

channels at existing storm drain outfalls to the Lagoon that has created freshwater ponding and favorable mosquito breeding habitat. Additional benefits include improving saltwater inflow to the planned restoration. The Project also addresses flood inundation from more frequent storm events in the developed floodways in Sorrento Valley. Historically, trash and debris from the watershed have deposited within the Lagoon. Reductions in trash delivery to the Lagoon are also targeted by the Project through trash capture devices at the storm drain outfalls and through the three floodplain enhancements.

As shown on Figure 1-9, Phase 1 will be implemented in three construction sub-phases. Each sub-phase consists of key project components that are needed prior for the success and sustainability of the lagoon restoration. The sub-phases are not stand-alone project elements, but rather are implemented in a phased order to address sediment and freshwater impacts prior to implementing the salt marsh restoration. The key reason for presenting the Project in sub-phases is to divide the required project elements into construction periods to address restrictions during bird nesting periods. Each construction sub-phase is estimated to be completed in 5-6 months from September 1 to January 31 with the third sub-phase likely to require an extension into the following year. The elements within each of the three subphases also address each of the key site conditions as summarized in Section 1.3. Sub-phase 1A will be implemented first and includes upstream sediment management through the construction of floodplain enhancements that are needed to capture coarse sediment that could impact downstream restoration efforts. Sub-phase 1B will consist of the construction of freshwater management measures to improve conveyance of dry weather and storm flows to reduce contact time with planned salt marsh restoration areas, as well as deepening of the tidal channel to increase tidal exchange into the salt marsh restoration area. These sediment and freshwater management measures that will be completed in sub-phases 1A and 1B are needed prior to implementing the restoration of degraded salt marsh vegetation under sub-phase 1C.

Figure 1-9: Phase 1 Construction Sub-Phases



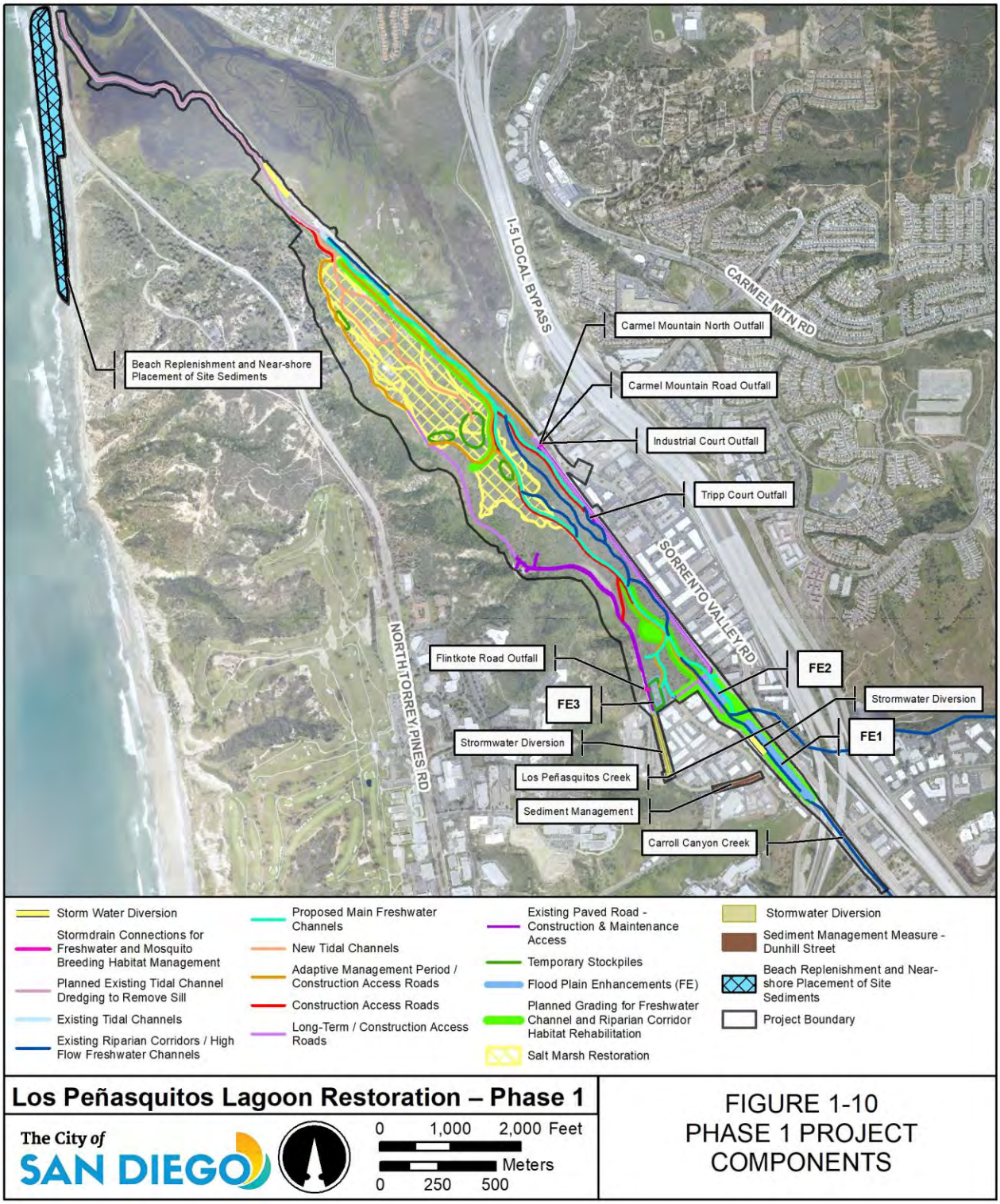
1.4.1 Construction Sub-phase 1A – Upstream Sediment Management and Riparian Corridor Enhancement and Rehabilitation

Sub-phase 1A includes sediment reduction measures in the upstream portion of the project footprint that are located outside of the current stream channels and will use natural floodway processes to slow down storm flows and allow coarser sediments to drop out and be periodically removed. Three floodplain enhancement sediment management features and enhancement to the drainage ditch along Dunhill Street (Dunhill Ditch) to increase sediment management capacity are planned. Stormwater diversions from Flintkote Channel and the Dunhill Ditch are planned for both sediment and flood management. Sub-phase 1A also provides upgrades to storm drain outfalls that discharge into the Lagoon, and construction of a permanent access road to these outfalls for long-term maintenance that includes removal of sediment, trash and erosion repair. No access is currently available due to the location of these outfalls adjacent to the railroad berm.

Sediment Management – Floodplain Enhancements

Long term sediment loading from the watershed has impacted the riparian corridors and historical salt marsh habitats. In order to address these impacts and meet TMDL sediment load reduction targets and timelines, sediment management measures are planned upstream of the TPSNR prior to reaching the Lagoon. The sediment management measures include three floodplain enhancements (see Figure 1-10). The floodplain enhancement features will increase the maintained channel width and incorporate vegetated gabion structures that will reduce water surface elevations and flow velocity to increase sediment capture.

Figure 1-10: Phase 1 Project Components



Various designs were considered within each floodplain enhancement feature to promote sediment capture, reduce flow velocity, and increase channel conveyance, habitat function and operation and maintenance access. These project components are needed to reduce the sediment loads that would otherwise be transported to the downstream salt marsh restoration site. These design elements include:

- **Bioengineered Grade-Control Structures:** Gabion structures are flexible welded wire boxes that provide stability, erosion protection, and energy dissipation, while also serving as a permeable obstruction that can capture sediment and still allow water to pass through. For this Project, these structures will have stone as a base and then be earthen-filled and vegetated in the upper layer to provide a more natural bioengineered approach and added habitat value. Vegetation that will be included as part of these bioengineered grade control structures will be sand bar willow (*Salix exigua*) and arrowweed *(Pluchea sericea)*. These bioengineered grade control structures are intended to reduce velocities throughout the floodplain enhancement feature which will allow for coarse sediment to settle. As flow continues to move downstream, sediment will accumulate at each gabion and flow will pass through the structure and continue downstream. Spacing and height of the gabion structures are provided on the Permit Level Design Drawings. Discussion of operation and maintenance for the floodplain enhancement features is discussed below.
- **Open Cell Articulated Concrete Blocks:** Articulated concrete blocks are proposed to facilitate operation and maintenance needs within the floodplain enhancement features. The purpose of each floodplain enhancement is to capture sediment and as a result will require frequent maintenance activity to maintain efficiency. Articulated concrete block will provide erosion control as large sediment deposits accumulate within the flood enhancement features and provides a drivable surface to remove sediment accumulations. Additionally, the inclusion of articulated concrete blocks will provide a consistent baseline condition for routine maintenance activity (i.e., providing a defined maintenance area and clear guidance for maintenance activity parameters). Open cell articulated concrete blocks will be planted with native grasses such as creeping wild rye (*Elymus triticoides*), giant wild rye (*Elymus condensatus*), marsh fleabane *(Pluchea odorata)*, and deer grass (*Muhlenbergia rigens*). Incorporation of native vegetation into floodplain enhancement areas will increase aquatic functions, wildlife value, and reduce mitigation requirements. Discussion of operation and maintenance for each floodplain enhancement feature is discussed below.

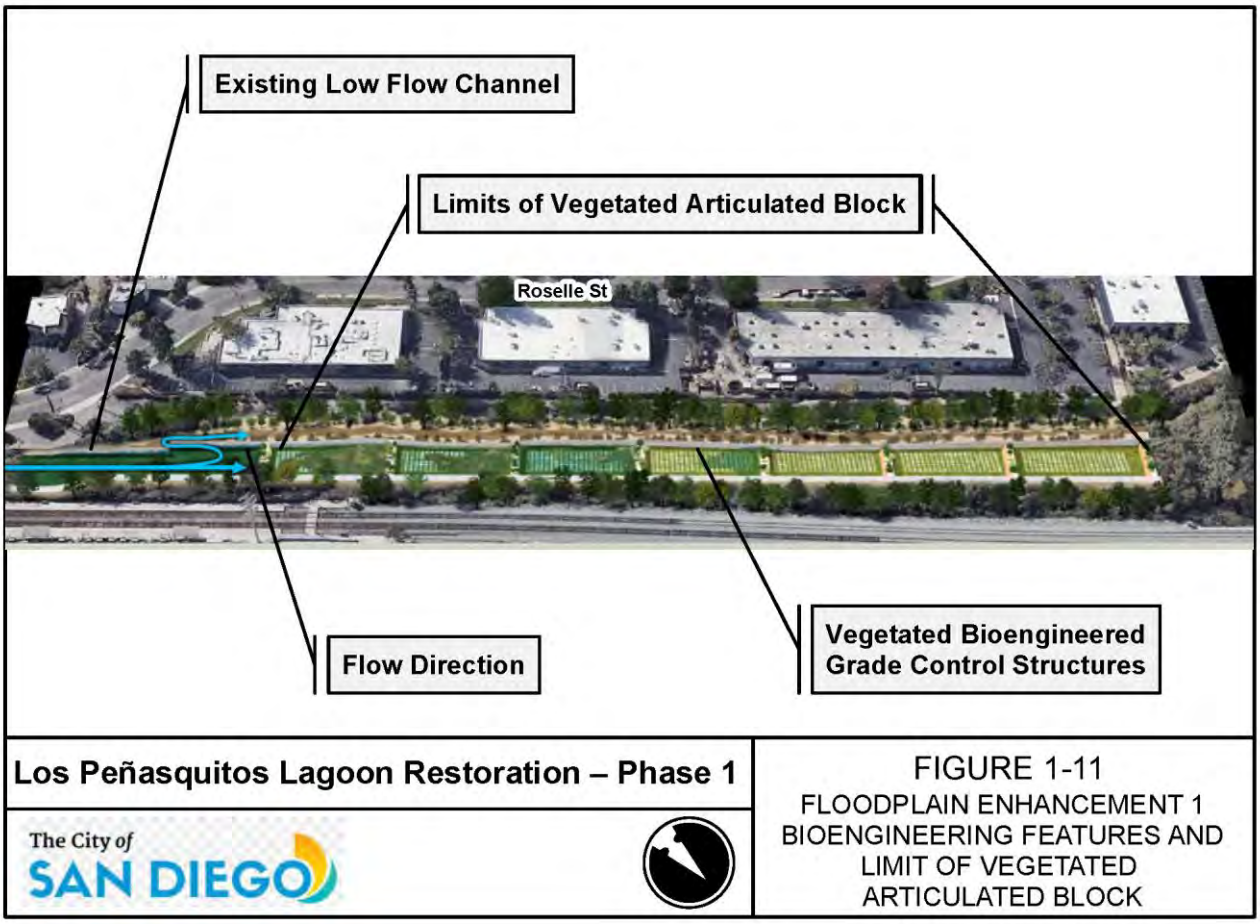
Floodplain Enhancement 1

Floodplain Enhancement 1 is located adjacent to Carroll Canyon Creek upstream of the confluence of Carroll Canyon Creek and Los Peñasquitos Creek and downstream of the existing concrete channel (see Figure 1-10). The area currently consists of well-established, dense native and non-native vegetation. The Floodplain Enhancement 1 footprint is mostly within a City of San Diego easement.

As shown in Figure 1-11, the proposed improvements include expanding the channel width at the convergence of the existing Carroll Canyon Creek concrete channel with the narrow earthen bottom channel to promote peak stormwater flow into the floodplain enhancement The floodplain enhancement 1 design allows for low dry season flow to continue to pass through the existing low flow channel that parallels the southwest side of Floodplain Enhancement 1. The banks of the existing low flow channel on the side of the floodplain enhancement will be laid back to improve establishment of planted native riparian vegetation. Non-native plant species will be removed from both banks and revegetated with native riparian plantings to

improve the existing condition of the channel that is characterized by steep and incised banks with invasive plant species.

Figure 1-11: Floodplain Enhancements 1- Bioengineering Features & Limit of Articulated Block



Bioengineered grade-control structures within the floodplain enhancement will reduce flow velocity and capture sediment within the series of cells. Greater sediment deposition will occur in the first cells, and as these cells fill with accumulated sediment, additional sediment will accumulate in the downstream cells. This sequential accumulation of sediment in maintainable cells allows for segmented maintenance that minimizes the maintenance area being disturbed at any one time. Bioengineered grade control features (i.e., gabions) placed perpendicular to the channel flow will be planted with native riparian vegetation. Similar gabion features running parallel to the floodplain enhancement that enclose the cells will remain unvegetated for the purpose of capturing sediment as flow moves downstream. Bioengineered grade-control features will be placed at an approximate spacing of 150 feet to reduce velocities and capture sediment. A trash capture device using open chain-lined fencing or similar approach will be installed on the grade-control structure.

The bottom of the floodplain enhancement feature is proposed as open cell articulated concrete blocks. The articulated block will allow for maintenance access and will provide a defined baseline area for routine maintenance.

The upstream limit of Floodplain Enhancement 1 begins at the end of the existing concrete lined channel. There is an existing access ramp located near the intersection of Roselle Street and the Southbound Interstate 5 onramp where a connection from the existing concrete-lined channel will transition to the proposed Floodplain Enhancement 1 with articulated concrete blocks.

Floodplain Enhancement 2

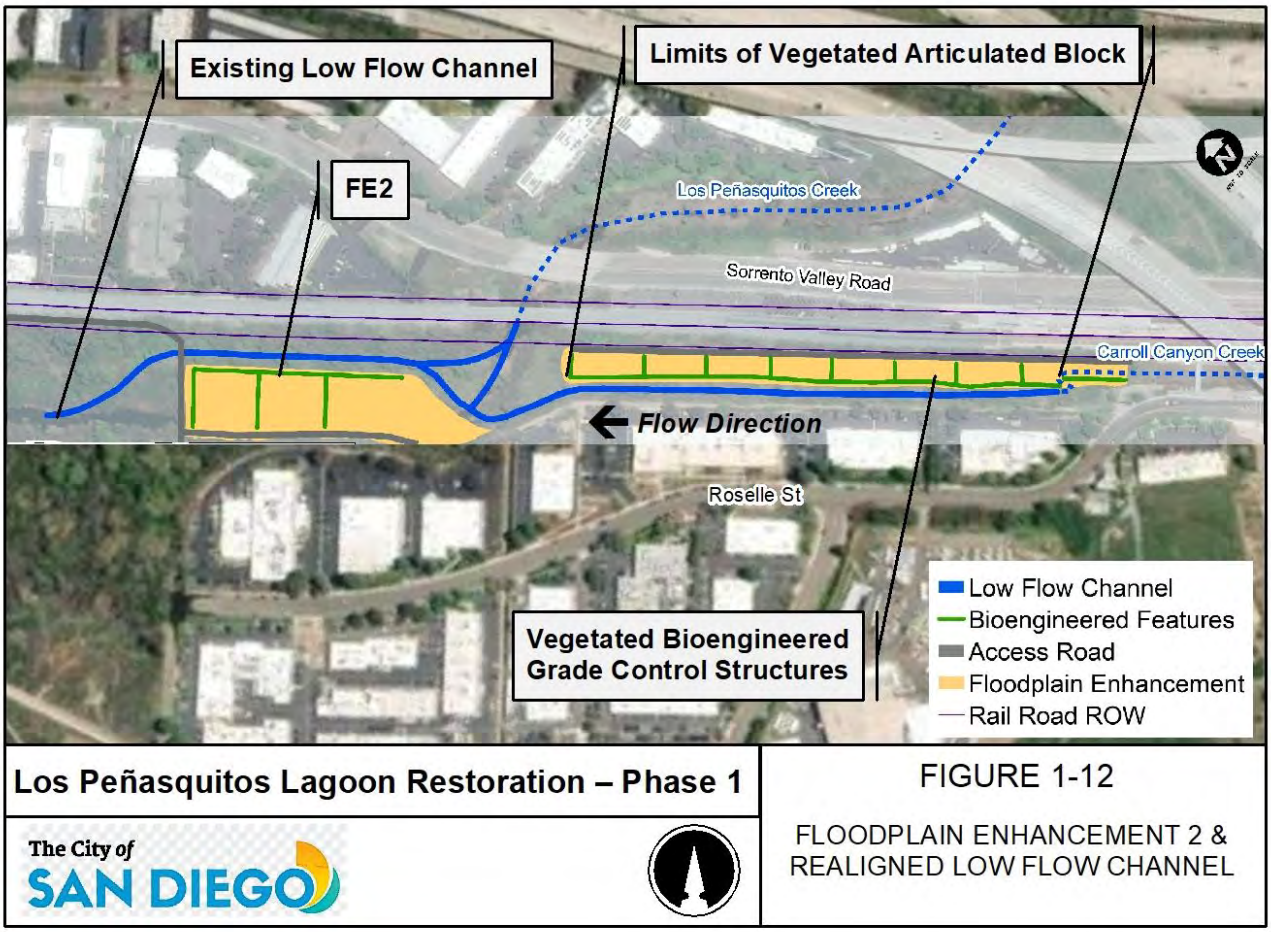
Floodplain Enhancement 2 is located at the confluence of Carroll Canyon Creek and Los Peñasquitos Creek (see Figure 1-12). The area is relatively flat with dense riparian vegetation, There is a defined channel that favors the west side of the proposed enhancement feature that serves to convey flow. The Floodplain Enhancement 2 footprint is within three private parcels and will require acquiring easements from the private owners. This design feature is needed to reduce the sediment loads to the downstream salt marsh restoration.

The proposed design balances impacts to existing natural resources with the need to optimize sediment and debris removal at this location. Without the floodplain enhancement feature, sediment and trash would be transported downstream and impact the lagoon and salt marsh restoration. Existing natural resources within the area include riparian habitat and a wildlife corridor for listed Ridgway's Rail. With these design goals, the final design for Floodplain Enhancement 2 will direct stormwater flows from Los Peñasquitos Creek into the feature and allow for dry-season low flows to enter into the re-aligned low flow channel to be located along the northeastern side of the floodplain enhancement (see Figure 1-12) and serve as a Ridgway's rail wildlife movement corridor. This configuration allows for a minimum 95-foot-wide wildlife corridor and higher sediment removal efficiencies than maintaining the current location of the low-flow channel adjacent to the industrial development. The channel that leads from Los Peñasquitos Creek to the floodplain enhancement will require bank and channel bottom stabilization to address expected peak stormwater velocities. Channel stabilization techniques will include articulated concrete block, vegetated soil lifts, and other bioengineering features. The re-aligned low flow channel will have an earthen bottom. Existing non-native plant species will be removed, and the habitat will be enhanced with replanted native vegetation that is appropriate for Ridgway's rail passage.

Within the Floodplain Enhancement 2 feature, bioengineered grade-control structures will be placed perpendicular to flow to reduce velocities and capture sediment from Los Peñasquitos Creek and Carroll Canyon Creek. The bottom of the Floodplain Enhancement 2 will be articulated concrete block to allow for periodic removal of the sediments.

Access to Floodplain Enhancement 2 will be from Estuary Way and on a new access road that uses an existing "paper" street easement along the eastern side of the floodplain enhancement feature. Maintenance frequency estimates will be developed as part of the operations and maintenance plan.

Figure 1-12: Floodplain Enhancement 2 & Realigned Low Flow Channel



Floodplain Enhancement 3

Floodplain Enhancement 3 is located at the corner of Flintkote Avenue and Estuary Way within the City of San Diego-owned parcel (see Figure 1-10). There is a culvert crossing at Flintkote Avenue that conveys approximately 70 acres of tributary area to the Lagoon. Floodplain Enhancement 3 is sparsely vegetated and consists of disturbed areas that were formally used for stockpile and equipment storage by the City. The portion of the floodplain enhancement that will direct flows from the Flintkote outfall is more densely vegetated and contains extensive sediment accumulation due to the lack of a defined connection to the Lagoon from the Flintkote Avenue culvert crossing.

Floodplain Enhancement 3 is divided into thirds by bioengineered grade control structures, with the northern two-thirds receiving stormwater from the Flintkote Avenue outfall and the southern third receiving flows from the Flintkote channel stormwater diversion, with its outfall along Estuary Way. The existing storm water conveyance at Flintkote Avenue, between Estuary Way and Tower Drive, consists of a 30-inch reinforced concrete pipe (RCP) spanning Flintkote Avenue conveying approximately 45 acres of tributary area. The existing 30-inch RCP discharges to a concrete-lined ditch that cuts directly through the business park with a

culvert crossing at Roselle Street, before reaching the ultimate outfall location at Carroll Canyon Creek. The stormwater diversion will capture stormwater flows before entering the Flintkote Channel and divert these flows through an underground culvert along Flintkote Avenue to Floodplain Enhancement 3 as shown on Figure 1-10.

Floodplain Enhancement 3 will serve to capture additional sediment-laden runoff, which will pass through the bioengineered grade control structures to the middle third of the proposed detention area before discharging through a riser into a proposed low-flow connector channel that connects to the Lagoon. The northern and southern third of the basin will be lined with articulated concrete block which will serve as erosion control at the outfall locations, as a means for maintenance access, and to define the baseline maintenance area. The basin will include a monitoring pole with markers that indicate when maintenance will be necessary. Maintenance frequency estimates will be developed as part of the operations and maintenance plan. An access ramp will run along Flintkote Avenue with additional access surrounding the proposed basin within the property line.

Floodplain Enhancement 3 area will be used as a temporary stockpile and equipment laydown area during the Project construction. Therefore, Floodplain Enhancement 3 construction will occur when excavation and material management is completed in construction sub-phase 1C.

Enhancements to Dunhill Ditch

Enhancement to the existing drainage ditch along Dunhill Street are planned to increase sediment management and flood flow capacity of the ditch. The existing drainage ditch receives sediment laden storm flow from the upstream 217-acre tributary area and conveys these flows to the ditch and then into a 54-inch RCP culvert that discharges into Carroll Canyon Creek. Due to the elevation of the culvert outfall and ditch inlet compared to the water elevation in the creek during storm flows, the system experiences backflow conditions, and the capacity of the ditch to retain and manage sediment and convey stormflows becomes constrained. Several options were evaluated to divert sediment laden storm flows from this outfall and ditch. Deepening the ditch did not provide additional capacity due to the backflow issues and diverting flow to Floodplain Enhancement 3 was not feasible due to the low grades. The least impactful option and most feasible from a long-term maintenance stand-point is the implementation of a new stormwater diversion culvert that conveys the flows from the Dunhill Ditch to a new outfall farther downstream where surface water elevations are lower. The ditch enhancements include grading to increase capacity and installation of asbestos cement pipe (ACP) on the bottom of the ditch to facilitate sediment management similar to the floodplain enhancements.

These sediment management measures are integral to the success of the salt marsh restoration to address impacts from sediment accumulation in restored areas.

Operations and Maintenance of Floodplain Enhancements and Dunhill Ditch

Operations and maintenance of the floodplain enhancement and Dunhill ditch will be the responsibility of the City. The frequency of sediment removal from the Floodplain Enhancements and Dunhill Ditch will depend on the number and intensity of the storm events during the wet season. It is estimated that removal of sediment from the floodplain enhancements and Dunhill Ditch will be needed at least annually prior to the storm season and at least once following a larger storm event. The frequency will be based on the amount of sediment accumulated and will be specified in the operation and maintenance plan to be included with the permit applications. The amount and level of vegetation maintenance within the floodplain enhancements will depend on the vegetation growth and sediment accumulation. On an annual basis the floodplain

enhancements and Dunhill Ditch will be inspected and maintenance will be conducted to meet performance criteria. Maintenance may also be conducted in phases by segments of the floodplain enhancements. Less frequent sediment removal from the low-flow channel adjacent to Floodplain Enhancement 1 is anticipated. It is estimated that sediment removal from the low flow channel will be required every 3-5 years. The side slopes and banks of the low flow channel along Floodplain Enhancement 1 will not require maintenance and will be enhanced with the removal of invasive plants and replacement with native riparian vegetation. Removal of sediment in the floodplain enhancements and low flow channel is needed to control the migration of coarser sediment to the planned restoration area that will impact the sustainability of the restored salt marsh habitat. Limited maintenance (every 5 years) is anticipated in the re-aligned low flow channel along Floodplain Enhancement 2.

Riparian Corridor Enhancement and Wildlife Corridor

The riparian corridor along the southwestern side of Floodplain Enhancement 2 (current alignment of the low flow channel) to the end of the California Coastal Conservancy parcel (downstream of the "pilot channel" at the "sediment plug") has been degraded with accumulated coarse sediments and the introduction of non-native and invasive plants. As shown in Figure 1-10, this riparian corridor will be rehabilitated through the removal of accumulated sediment and invasive plants and re-vegetation with native riparian species. Areas adjacent to the new freshwater management channel will be graded to provide for long-term sediment accumulation to reduce future maintenance and habitat disturbance. Due to the narrowing of the marsh plain at this location, sediment accumulation will continue but at a lower rate due to the upstream floodplain enhancements. As shown in Figure 1-9, this segment of riparian corridor enhancement from the downstream end of Floodplain Enhancement 2 to the narrowing of the marsh plain is planned for sub-phase 1B. This segment may be scheduled for implementation during sub-phase 1A to accelerate the timeline for habitat enhancement efforts to address habitat impacts from the construction of Floodplain Enhancements 1 and 2. Riparian corridor habitat enhancement planned for sub-phase 1A includes the slopes of the existing low flow channel along Floodplain Enhancement 1, along the former low-flow channel, and along the realigned channel along Floodplain Enhancement 2.

Habitat enhancement for sub-phase 1A will extend up into the Los Peñasquitos Creek to the railroad embankment and along the re-aligned low-flow channel along northeastern side, with select removal of invasive plants and replacement with native riparian vegetation. The habitat enhancement of the area along the re-aligned low flow channel adjacent to the Floodplain Enhancement 2 will provide for a wider and more directly connected wildlife corridor that connects with the upstream Los Peñasquitos Creek corridor. This wildlife corridor will be vegetated with plants that encourage the movement of Ridgway's Rail from the upstream creek corridor to the Lagoon.

Storm Drain Outfall Upgrades

Upgrades to storm drain outfalls that directly discharge to the Lagoon within Phase 1 are part of sub-phase 1A in order mitigate the accumulation of sediment and trash from these outfalls into the Lagoon and remove scour ponds that are favorable habitat for mosquito breeding (Figure 1-10). These include the Tripp Court, Industrial Court/Carmel Mountain/Carmel Mountain North, and Flintkote Road outfalls.

The Industrial, Carmel Mountain and Carmel Mountain North storm drains will all discharge at the same location at the downstream side of the existing railroad bridge. The existing open channel from the Industrial Court

outfall will be replaced with an underground culvert to reduce impacts from vegetation clearing that is currently needed to maintain this ditch. Upgrades to these outfalls include removal of accumulated sediment, filling in scour ponds and providing stabilization/energy dissipation (rip rap) to address future scouring and ponding at the outfalls and connecting the outfalls to the freshwater channels to address ponding. Existing rip rap at the Tripp Court and Carmel Mountain outfall will be used to minimize impacts. Upgrades include installing trash capture devices on the upstream side of the outfalls. Upgrades to the drainage pipe upstream of the outfalls to address sediment built-up and capacity issues is planned for the Industrial Court and Carmel Mountain Outfalls. A permanent access road is planned from Floodplain Enhancement 2, along the toe of the railroad embankment, up to the new Industrial Court and Carmel Mountain Outfalls to facilitate ongoing maintenance.

The existing storm drain system at Flintkote Avenue currently accumulates large amounts of sediment resulting in sediment overtopping the road, and ponded water near the outfall location. Frequent maintenance is required to maintain road access along Flintkote Avenue. The existing outfall location is within the State Coastal Conservatory property beyond the limits of the City parcel line. The proposed storm drain improvement includes realigning the storm drain spanning Flintkote Avenue to outfall into the proposed northern third of Floodplain Enhancement 3, proposed within the City of San Diego property line. The culvert is proposed as a single cell 6 feet wide (W) by 3 feet height (H) RCB to replace the existing 36-inch RCP. Roadway improvements will be required along Flintkote Avenue in order to facilitate the construction of the RCB along Floodplain Enhancement 3, including changes to the road elevation (raising of the road). The outfall location within Floodplain Enhancement 3 will be lined with articulated concrete blocks to prevent scour and provide maintenance access for sediment removal. Realigning the storm drain to outfall directly into Floodplain Enhancement 3 allows for the capture of sediment before entering the connector channel to the Lagoon. As Floodplain Enhancement 3 will be used as a stockpile area during sub-phase 1A and 1B, upgrades to the culvert on the upstream western side of the road and under the road may be completed in sub-phase 1A with the downstream outlet tied into the Floodplain Enhancement in sub-phase 1C.

1.4.2 Construction Sub-phase 1B - Freshwater Management – New Primary and Secondary Freshwater Management Channels

Construction sub-phase 1B will be implemented following completion of the construction sub-phase 1A Floodplain Enhancement features. Without the completion of Floodplain Enhancements 1 and 2, the new channel could rapidly accumulate sediment during storm events and move sediment further down into the Lagoon, further impacting sensitive habitat. Sub-phase 1B will consist of constructing the primary and secondary freshwater conveyance channels. Riparian and wetland habitat restoration/rehabilitation and enhancement is also planned adjacent to the new freshwater management channels where habitats have been degraded with invasive and non-native plant species and conversion from increased freshwater inputs within sub-phase 1B. The alignment of the new freshwater management channels will follow these areas of degraded habitat, leaving existing established riparian corridors intact to the extent feasible to minimize habitat impacts. This re-alignment reflects an assessment of alternatives during the design process that moved these channels from along existing riparian corridors to areas of degraded habitat to minimize impacts to sensitive habitats.

Sub-phase 1B will improve connectivity of the upstream Carroll Canyon Creek and Peñasquitos Creek channels with the Lagoon to provide enhanced conveyance of stormwater and dry-weather freshwater and stormwater flows away from wetland conversion zones. The freshwater channels will provide effective conveyance through the upper lagoon and reduce the duration of storm flow inundation within planned salt

marsh restoration areas. This includes conveying stormflow more effectively in the area of degraded non-tidal salt marsh that will be restored by removing invasive plants and approximately 6-8 inches of sediment that contains the seed bank of the invasive Italian rye grass within this area.

Freshwater management will be achieved with the implementation of a primary freshwater management channel that connects the upstream "pilot" channel with the downstream tidal channel (see Figure 1-10). Secondary freshwater management channels are also planned to reduce the retention times of storm flows that inundate the marsh plain and promote habitat conversion. The reduction in retention times will reduce the conversion of historical tidal and non-tidal salt marsh to degraded salt marsh and freshwater marsh. The primary channel section from the "pilot" channel to the mid-Project areas will be a 4.5-foot depth trapezoidal channel with a 10-foot bottom width and varying 2:1 to 10:1 side slopes. The channel section will vary in depth and width (between the top of banks) as it is adjusted for existing grades and to address potential scouring and sediment accumulation. Vegetated soil lifts (bioengineered reinforced channel banks) will be used in several sections to address potential scouring. Limited sections will be constructed with cobble-bottom lining, where predicted velocities may cause erosion, and with boulder step-downs, where grade changes are more severe. The channel section will be cut 1 to 2 feet deeper than the previous channel to provide a consistent channel slope. Secondary channels and existing channels will help convey larger storm flows through the area while also helping to drain the mid-Project area after inundation during larger events. Outfalls penetrating the railroad berm, including the Tripp Court and Carmel Mountain Road outfalls, will be served by secondary channels which will connect into the primary channel and further reduce ponding of freshwater and the duration of inundation after storm events.

As flows reach the salt marsh restoration area (sub-phase 1C), secondary channels will converge to the primary channel and an elevated grade control feature will parallel the channel to contain dry weather flow and smaller storm events within the channel and away from the planned salt marsh restoration. Currently, persistent dry weather flows inundate the sub-phase 1C salt marsh restoration area and storm event flows are retained and ponded within the area, resulting in conversion and degradation of the salt marsh habitat. The proposed grade control feature will serve to reduce the depth and duration of freshwater storm flows within the sub-phase 1C restoration area similar to the effect of existing berm of the former wastewater pond. Sub-phase 1C will still inundate during 1-year storm events (see Figure 1-13). The area shown that is not inundated in a 1-year storm event is the freshwater transition zone that will fully inundate under a larger storm events (see Figure 1-14). Groundwater levels are close to the surface in these areas and will not be impacted by the new channels. In addition, the grade control feature will convey sediment around the planned restoration area and maintain sediment loading to the salt marsh restoration area below current loading conditions.

During the five-year adaptive management period, maintenance of segments of the freshwater conveyance channels will likely require select removal of accumulated sediment and control of vegetation. Temporary access roads will be maintained during the five-year period for channel maintenance in the segment from Floodplain Enhancement 2 to end of the Coastal Conservancy parcel where a hydraulic restriction exists that will continue to promote sediment accumulation in this segment. To reduce the frequency of channel maintenance in the next downstream segment from this hydraulic restriction to the grade control feature, rounded cobbles will line the channel bottoms to provide a substrate that will retard the establishment of woody vegetation that could reduce channel conveyance capacity. Riparian vegetation will be established outside of the conveyance channels banks to provide a continuous riparian corridor up to the limits of the new tidal influence. The use of cobbles is to reduce impacts from frequent maintenance and vehicle access in this segment where construction access roads will be removed and not maintained into the adaptive

management period. Long-term maintenance of this segment of the channel will depend on observations during the adaptive management period, the successful establishment of non-tidal and tidal salt marsh vegetation in the restoration areas and planned dry weather diversions on Carroll Canyon and Los Peñasquitos Creeks. This segment may then return to a braided system in the long-term. Maintenance of the freshwater management channel from the grade control feature to the tidal channel will be conducted during the adaptive management period to maintain dry weather and storm flow capacity and address erosion from larger storm events. The adaptive management period access road along the grade control feature will be used for both periodic maintenance of this segment of the freshwater management channel and the salt marsh restoration areas. Long-term maintenance will depend on the results of the monitoring and assessment during the adaptive management period and is expected to occur in perpetuity by or at the direction of State Parks staff. In general, the freshwater management channels, enhancement areas, and tidal salt marsh restoration areas are all expected to become naturalized and require minimal long-term maintenance, similar to other natural areas within the State Park.

Figure 1-13: Phase 1B Storm Flow Inundation Compared to Existing Conditions – 1-Year Event

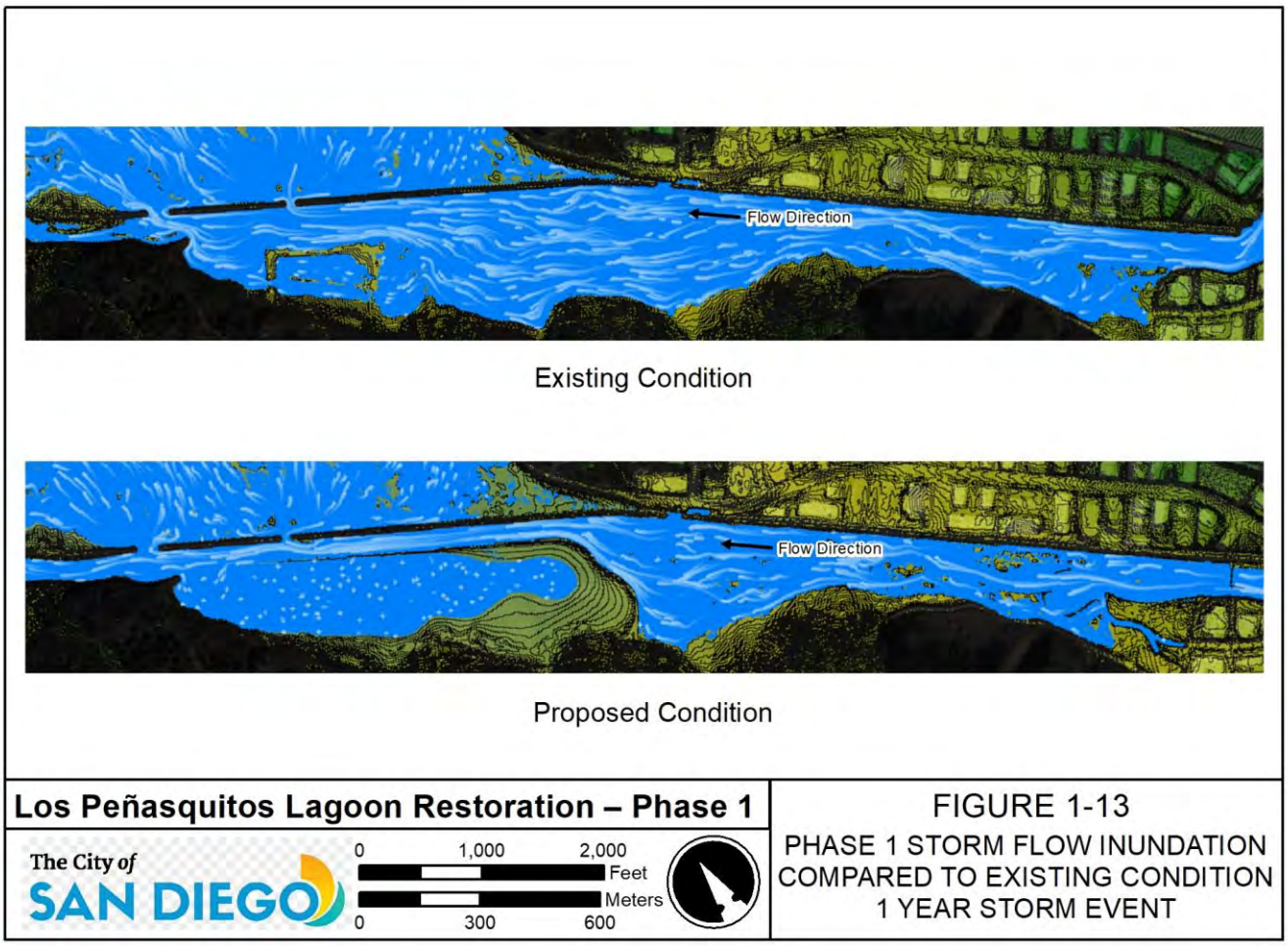
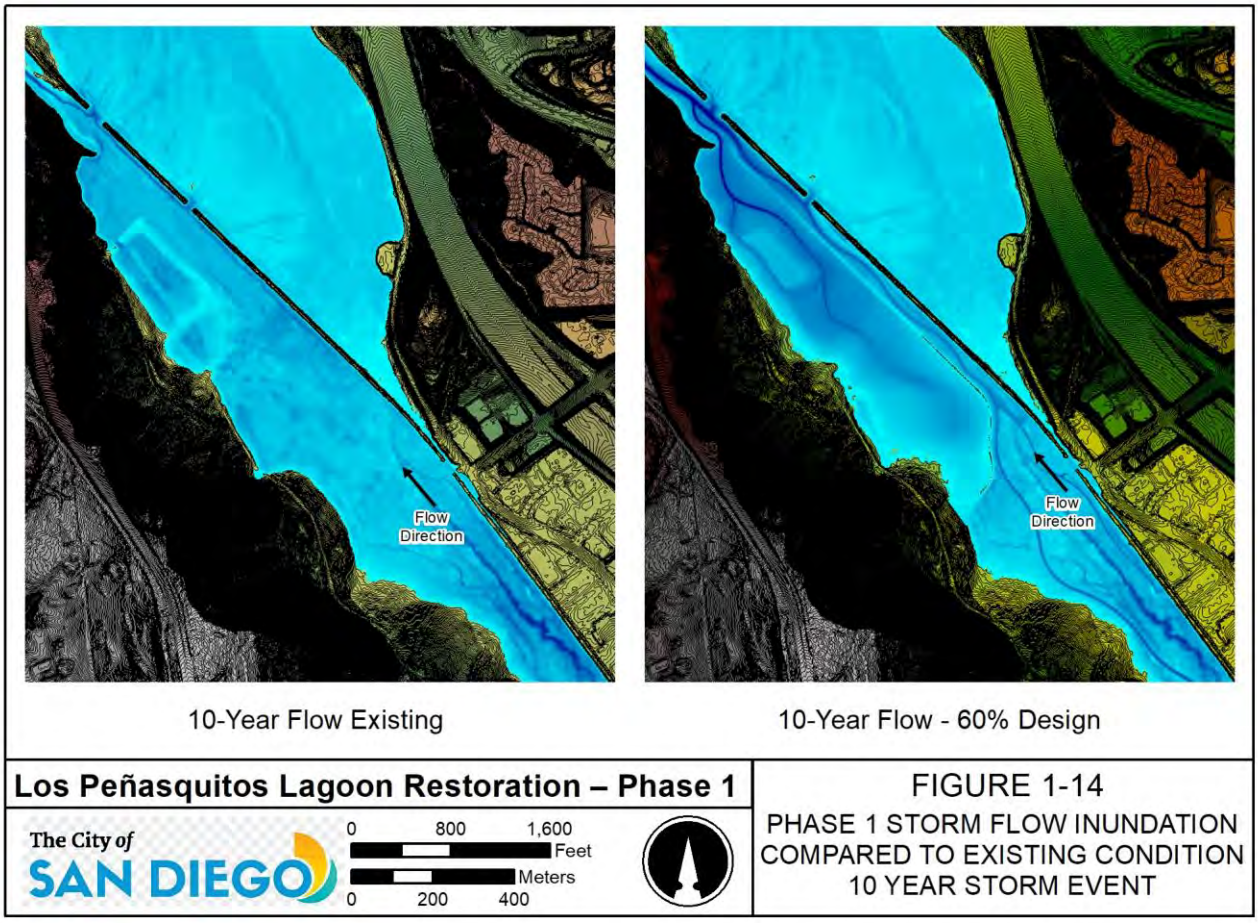


Figure 1-14: Phase 1B Storm Inundation Compared to Existing Conditions - 10-Year Event



Site Outfall Improvements at Downstream "Pinch Point"

The primary freshwater conveyance channel will be graded to allow connection with future Phase 2 channel improvements located under the two railroad trestles. However, higher Phase 2 topography presently limits flow under these trestles during storm events. Therefore, the primary outfall for Phase 1 freshwater will be through the "pinch point," a narrow opening between the railroad embankment and the toe of the upland bluff (see Figure 1-4). Historically there has been limited flow through the pinch point area that has caused upstream ponded water resulting in longer residence time within the proposed sub-phase 1C salt marsh restoration area. The Project includes both deepening and widening the channel through the constricted pinch point area to the point where bathymetry and modeling data shows the modified channel as sufficiently wide to allow tidal inundation into the restoration area. The area of the "pinch point" will also be graded to extend the existing tidal channel into the sub-phase 1C restoration. Areas adjacent to the pinch point channel will be graded to -2 feet NGVD29 to allow high-tide flows to reach the planned restoration and provide sufficient flow capacity to allow effective passage of combined freshwater flows and tidal flows through the pinch point. The tidal channel will be excavated to -3 feet NGVD29 to bring salinity levels to the planned salt marsh restoration similar to channel in the lower lagoon.

Removal of the Sediment Sill in Tidal Channel

Based on the results of the bathymetry survey of the tidal channel from the pinch point to the Lagoon inlet, there is a sediment sill in the channel downstream of the pinch point that limits tidal exchange into the planned salt marsh restoration. Hydrodynamic modeling of the current conditions further demonstrated that this sediment sill limits high-tide flows into the planned restoration area and traps freshwater in the upper channel, significantly reducing tide water salinity levels in the planned restoration area. The salinity levels at the pinch point are substantially lower than the tide water reaching tidal channels observed in other portions of the Lagoon. Reduced tide water salinity would negatively impact the establishment and sustainability of the proposed sub-phase 1C salt marsh restoration. Based on these results, sub-phase 1B channel conveyance will include dredging the tidal channel from the pinch point to the lagoon inlet to an elevation of -3 feet NGVD29 (see Figure 1-10). The one-time dredging of the tidal channel is expected to be sufficient to meet the project objectives; ongoing maintenance dredging is not included in the proposed project and may not be required under future sea level rise conditions.

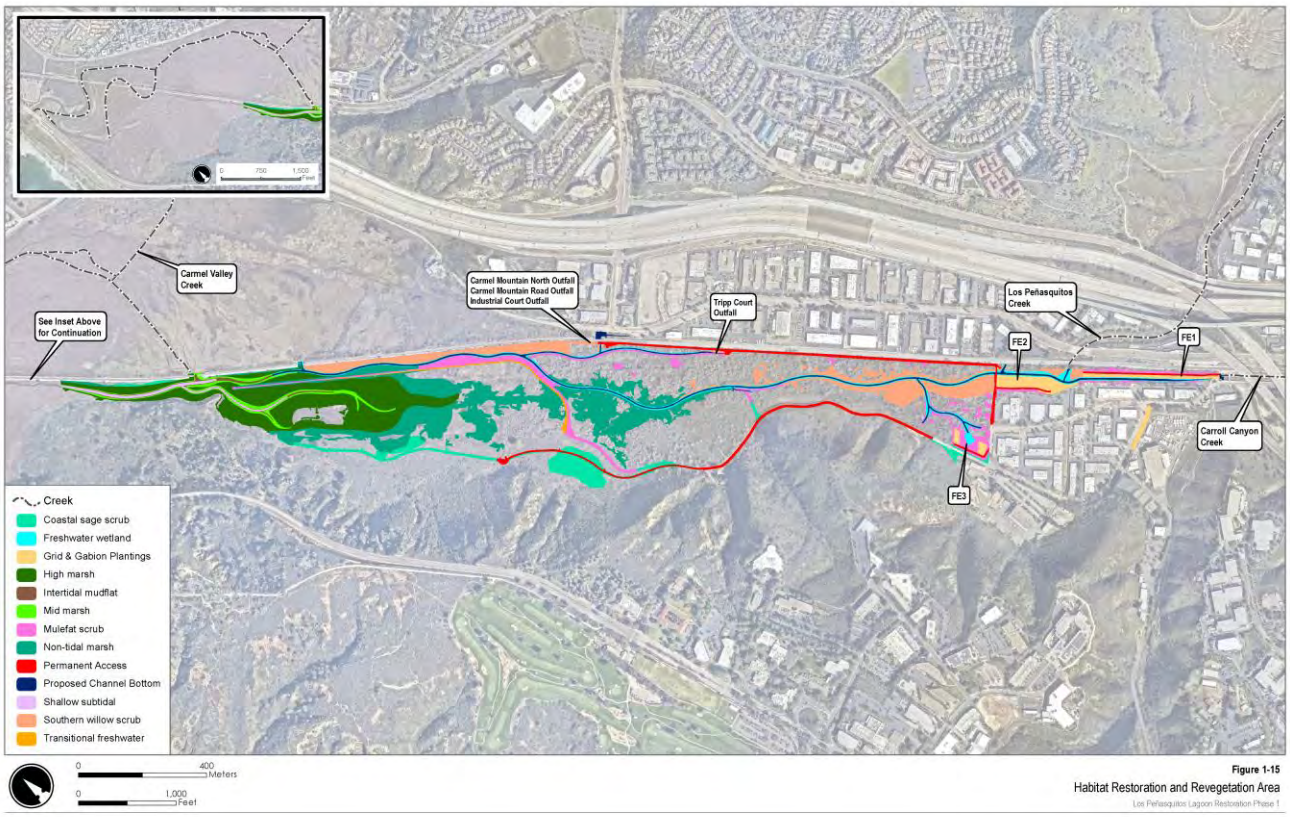
Habitat Rehabilitation and Enhancement

Sub-phase 1B includes habitat rehabilitation and enhancement in areas adjacent to the primary and secondary freshwater conveyance channels. The alignment of the conveyance channels has been designed to coincide with areas of degraded habitat and to avoid existing established riparian corridors to reduce existing biological resource impacts. There are isolated and continuous areas of degraded habitat as a result of introduction of non-native and invasive plant species within riparian corridors, freshwater marsh, and wetland conversion zones.The most prevalent nonnative species in freshwater wetland/riparian habitats include giant reed (*Arundo donax*), pampas grass (*Cortaderia selloana*), castor-bean (*Ricinus communis*), hoary cress (*Lepdium draba*), fennel (*Foeniculum vulgare*), English ivy (*Hedra helix*), and periwinkle (*Vinca* sp.). Additional nonnative species include poison hemlock (*Conium maculatum*), bottlebrush (*Callistemon* sp.), and eucalyptus (*Eucalyptus* sp.). In other wetland conversions zones including areas of former salt marsh habitat, the most prevalent nonnative species include perennial ryegrass, hoary cress, and pale-yellow iris (*Iris pseudacorus*). These areas are upstream and outside the extent of the sub-phase 1C salt marsh restoration. However, the areas adjacent to the sub-phase 1C restoration provide a further extension of restoration activities within the wetland conversion zones that will improve overall habitat function. Treatments within riparian habitat enhancement areas totaling approximately 5 acres will include removal of invasive plants, possible soil amendments, and replanting with native vegetation consistent with the surrounding habitat function. These habitat enhancement areas are not part of the planned conveyance channel grading areas and revegetation with native plants associated with the freshwater channels, bioengineered grade control structure upstream of sub-phase 1C, and the floodplain enhancement features. Herbicides may be used where appropriate.

Restoration of historical salt marsh habitat is planned within a large, relatively contiguous area of the existing degraded non-tidal salt marsh predominated with non-native rye grass (see Figure 1-15, dark green area adjacent to freshwater channel). Restoration of this degraded non-tidal salt marsh will include clearing and grubbing of existing non-native vegetation, removal of 6-8 inches of coarse sandy soils and non-native plant seeds, fine grading to establish positive drainage to the freshwater conveyance channels, hydroseeding, and native plant container planting. Restoration may include addition of topsoil and soil amendments to improve conditions for re-establishing native salt marsh vegetation. These areas will be revegetated with native vegetation appropriate for the desired habitat function.

Other than the approximately 2.9 acres of permanent access roads needed to provide maintenance of design features for sediment and freshwater management to provide a sustainable and resilient salt marsh restoration, the remaining portion of the Project footprint will be re-vegetated with native plants species, including areas degraded by invasive plant species and historical sediment accumulation.

Figure 1-15: Habitat Restoration and Revegetation Area



Note: Areas of habitat enhancement are shown in yellow. Areas of historical non-tidal salt marsh restoration are shown in green. Colors denote the target vegetation community and/or land cover.

1.4.3 Construction Sub-phase 1C Historical Salt Marsh Restoration

Sub-phase 1C will follow sub-phases 1A and 1B that address freshwater management and sediment loading that may impact the planned downstream restoration of historical coastal salt marsh located to the southwest of the railroad berm (see Figure 1-9). Sub-phase 1A and 1B are needed for the success and sustainability of the salt marsh restoration in sub-phase 1C. Using the management measures identified in the Updated LPLEP, restoration will include enhancement of the tidal connection and tidal inundation through extension and expansion of the existing tidal channel through focused grading. The sub-phase 1C restoration will be monitored during the 5-year adaptive management period to confirm successful conversion of the currently degraded salt marsh and converted freshwater habitats to a functioning native salt marsh area.

Salt marsh habitat restoration activities include removal of non-native perennial ryegrass (*Festuca perennis*) and excavation and grading to remove historically accumulated surface sediments to increase tidal extent and inundation. Site grading also includes the extension of tidal channels through the restoration site to increase the tidal connection, extend the tidal flows further into the site, and accelerate the passage of freshwater through the restoration area. The salt marsh restoration grading approach allows for the establishment of the salt marsh restoration within the anticipated schedule while enabling transition areas for future sea level rise (SLR) adaptation.

The downstream portion of the salt marsh restoration area will include deeper and wider graded channels and wide, gently sloped benches to achieve greater tidal inundation and frequency and increase the tidal prism to help sustain the restored salt marsh habitat. To limit the amount of dry weather freshwater flow entering the restoration area, the new primary tidal channel will connect to the existing tidal channel downstream of the railroad trestles and the new freshwater management channel connection (see Figure 1-15). The new primary tidal channel will be 10 feet in width and graded to -3 feet NGVD29. Adjacent benches to this channel will be graded below high-tide elevations to allow for tidal inundation, which will establish the water salinity levels needed to support high-salt marsh habitat. This area of greater excavation and tidal inundation will extend to limits of the high marsh shown in Figure 1-15 and corresponds to the limits of the historical salt marsh defined from aerial photographs from 1973 (LPLEP, 2016).

The new tidal channels will be limited in number and have limited dendritic branches to provide for greater ponding and detention of high-tide flows with the goal of increasing the salinity of sediment in this area to promote the establishment and sustainability of the restored salt marsh vegetation. Salt marsh vegetation remains predominant in the areas within the former wastewater pond (located in the central portion of the sub-phase 1C restoration); grading and disturbance will be limited to preserve these areas to the extent feasible.

Excavation depth would range from 3-8 feet. Based on the sediment investigation, there is a layer of sand overlying fine-grained soils in this former salt marsh area. Excavation within the salt marsh restoration will remove the sand and expose the underlying fine-grained soil necessary for salt marsh plant establishment. This sandy material will be used for beach replenishment if feasible. Dredged material from the removal of the sill in the downstream channel will be stockpiled as part of sub-phase 1B and allowed to dewater for use as topsoil in sub-phase 1C, as needed. This dredge material has high salinity and will help establish the native salt marsh plants.

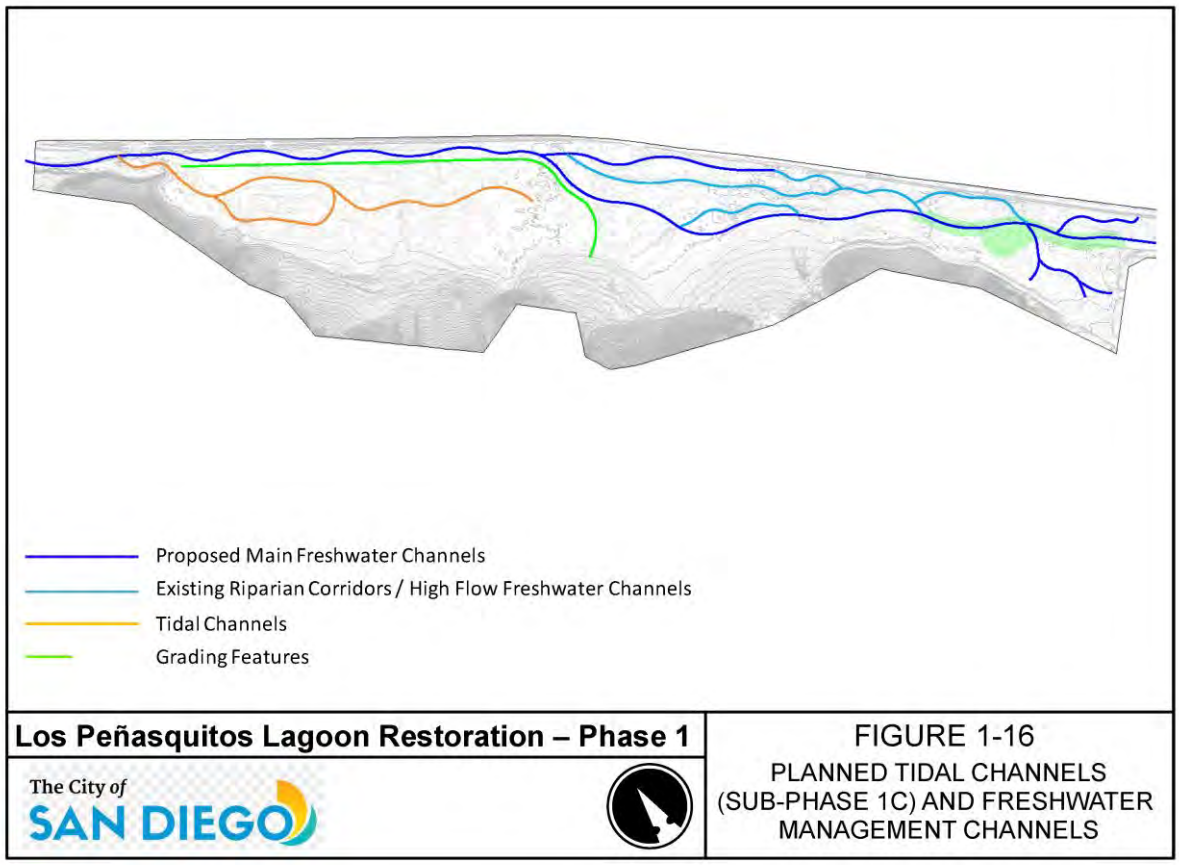
Grading will gradually decrease in depth further upstream corresponding to planned non-tidal salt marsh as shown in Figure 1-15. Excavation depth would range from 1-4 feet in this area. This portion of the restoration includes areas currently dominated by non-native rye grass in former non-tidal salt marsh. For areas where non-native grasses are dominant, it will be necessary to remove these grasses and some of the accumulated sandy materials to capture the non-native grass seed bank. The graded areas will be re-vegetated with native mid-salt marsh vegetation to achieve the desired conversion and control the spread and re-establishment of non-native species. This area may be subject to periodic King High Tides but will also rely on freshwater exclusion and future SLR to sustain the salt marsh habitat. Periodic "managed" (higher saline water pumped from tidal channels or from brackish groundwater in this area) saltwater inundation may be used to promote salt marsh establishment. This approach would facilitate development and implementation of measures that could be tested via an adaptive management framework with lessons learned applied to Phase 2, where there are extensive former non-tidal salt marsh areas.

The most upstream (southern) portion of the salt marsh restoration area provides transition zones for future SLR. Minimal excavation will occur in this area, which extend upstream to the areas shown in Figure 1-15 as transitional freshwater habitat. This area is anticipated to be subject to future tidal inundation based on the estimated Year 2100 SLR. This approach allows for adaptive management to address future SLR.

The restoration includes removal of the berm around the former wastewater pond. The removal of the berm will increase the area of salt marsh vegetation without impacting existing native wetlands. As stated previously, the area within the former pond that is predominantly native salt marsh vegetation will have limited grading and disturbance. Upstream sediment management and new freshwater conveyance channels combined with increased tidal exchange to this area will maintain salt marsh habitat within the former bermed area. A grade control feature is also planned along the freshwater channel to exclude persistent dry weather freshwater flows from the salt marsh restoration area and convey sediment around the planned restoration area. The results of the sediment transport modeling have indicated that this feature is needed to maintain sediment loading to the salt marsh restoration area below current loading conditions. The feature will extend along the entire length of the salt marsh restoration area. The new tidal channel will also increase tidal inundation to the sub-phase 1C area to better sustain salt marsh restoration. The new tidal channels to be constructed in sub-phase 1C and the freshwater management channels and grade control feature to be implemented in sub-phase 1B are shown on Figure 1-16.

The estimated acreage of restored salt marsh habitat including mudflat, mid-marsh, high-marsh, and non-tidal marsh is approximately 49 acres under post-construction tidal conditions. This includes both sub-phase 1B and 1C restoration efforts as shown on Figure 1-15. Sub-phase 1B focuses on non-tidal salt marsh restoration adjacent to the sub-phase 1C restoration area.

Figure 1-16: Planned Tidal Channels (Sub-phase 1C) and Freshwater Management Channels (Sub-phase 1B)



1.4.4 Diversions for Sediment/Flood Management

The following diversions are planned to further reduce sediment loading to the Lagoon and to reduce flood inundation in the business park during more frequent events. These diversions will be implemented during sub-phase 1B and 1C. The diversions to Floodplain Enhancement 3 will be implemented during its construction in sub-phase 1C.

Flintkote Avenue/Roselle Street Stormwater Diversion

The existing 30-inch RCP discharges to a concrete-lined ditch that cuts directly through the business park with a culvert crossing at Roselle Street, before reaching the ultimate outfall location at Carroll Canyon Creek. Under existing conditions, flooding frequently occurs due to existing flood conveyance capacity and sediment accumulation, as well as backflow from Carroll Canyon Creek at the outfall location. A diversion is planned at Flintkote Avenue to outfall to the southern third of Floodplain Enhancement 3 along Estuary Way to reduce sediment loading to the Lagoon and to reduce flooding during more frequent events.

Roselle Street/Estuary Way

The Roselle Street and Estuary Way intersection is one of three low points in the business park area. An existing dual 18-inch ACP serves to convey approximately 11 acres of local business park drainage from Roselle Street and Estuary Way to Los Peñasquitos Creek. However, backflow from the creek typically occurs and floods at the sump location. Street improvements and a transition structure will be made along the northern curb to provide a connection to a low-flow connector channel to the Lagoon. The low-flow connector channel will converge with the channel from the outfall of Floodplain Enhancement 3 before connecting to the main channel enhancement area.

Dunhill Ditch Stormwater Diversion

The planned diversion will move the existing 54-inch RCP that receives storm flow from the Dunhill ditch to farther down Carroll Canyon Creek. This farther downstream outfall has a lower water elevation allowing for greater capacity for sediment and stormwater management in the Dunhill ditch. The relocated underground culvert will run along the existing maintenance road.

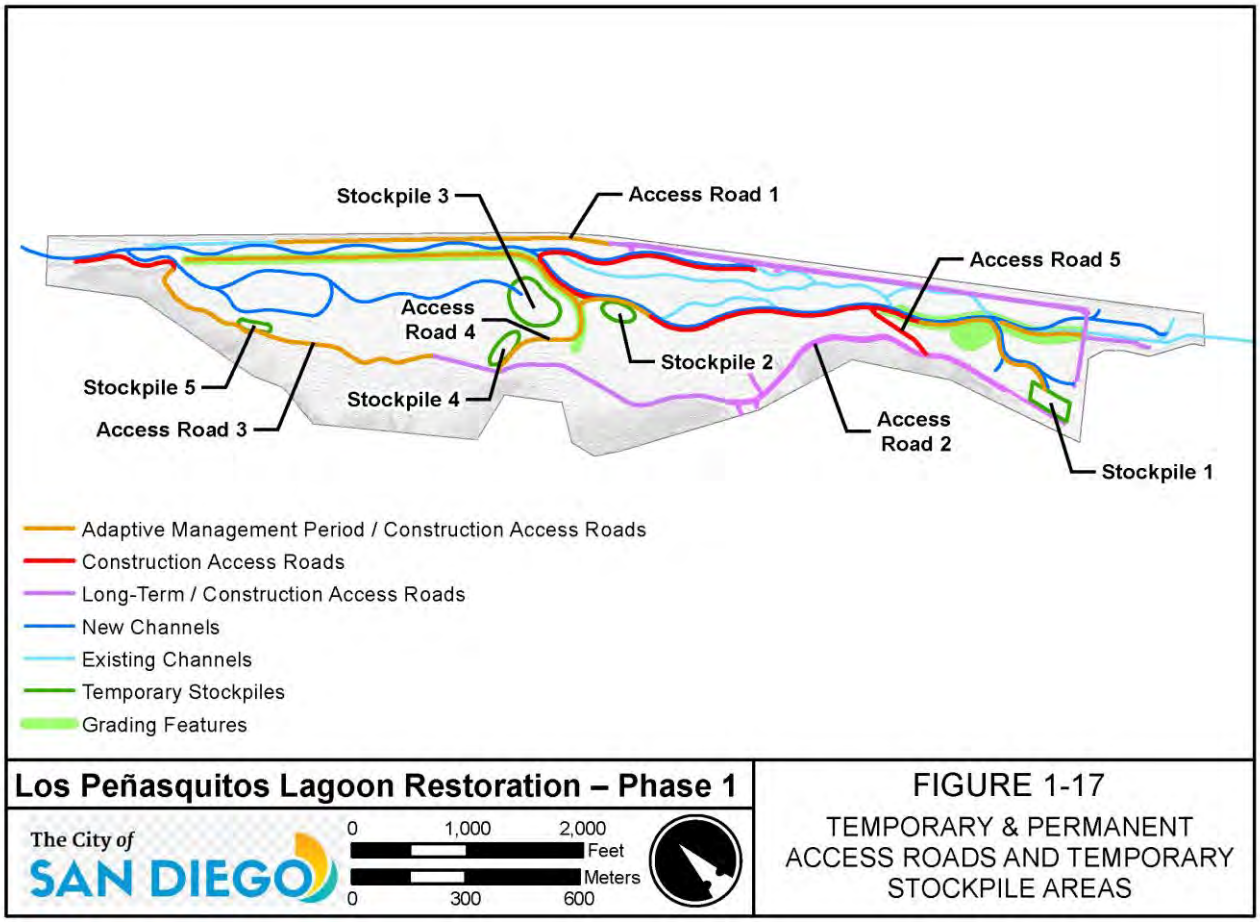
1.4.5 Temporary and Permanent Access Roads

Figure 1-10 shows the location of the planned permanent and temporary access roads for the Project. Access roads will be implemented in sub-phases 1A and 1B (see Figure 1-9). These access roads are further highlighted in Figure 1-18.

Sub-phase 1A Access Roads

Fifteen-feet wide permanent access roads will be provided to the three floodplain enhancement areas. The permanent access roads will be lined with articulated concrete block to provide structural stability and a defined maintenance path for the entire enhancement areas. For Floodplain Enhancement 1, the permanent access road will begin from the existing concrete channel near the existing access ramp, located near the intersection of Roselle Street and Southbound Interstate 5 on-ramp (Figure 1-12). It will provide access to the length of Floodplain Enhancement 1 before terminating near the convergence of Los Peñasquitos Creek and Carroll Canyon Creek. As shown in Figure 1-12, a permanent access road for Floodplain Enhancement 2 will begin along the Estuary Way parcel line and then along the southwestern side of Floodplain Enhancement 2 (the existing low flow channel will be realigned to the opposite side of the Floodplain Enhancement 2). This permanent access road from Estuary Way will continue to cross the realigned low flow channel along the western side of Floodplain Enhancement 2 and serve as a permanent access road to the Tripp Court and Industrial Court/Carmel Mountain Road/Carmel Mountain Road North outfalls. It will also be used as a construction access road for the outfall upgrades. Portions of the permanent access road will run parallel to the railroad and will be within the MTS right of way in order to balance access with compensatory habitat mitigation. Encroachment permits and easement agreements with MTS will be needed. There is currently no access to these outfalls to conduct maintenance activities that include removal of accumulated sediment and repair from erosion at the outfall. Access is not possible without going through this area due to the railroad embankment. Without this access road, maintenance of the outfalls is not feasible.

Figure 1-17: Temporary & Permanent Access Roads and Temporary Stockpile Areas



Sub-phase 1B Access Roads

As shown in Figure 1-17, there will be four temporary access roads to complete the construction of the freshwater management channels. Access Road 1 is along the northern perimeter of the Project begins at the sub-phase 1A permanent access road to Floodplain Enhancement 2, crosses the creek and then continues to the Tripp Court and Carmel Mountain Road Outfalls. This segment of the access road will be a permanent road for maintenance of the floodplain enhancement and outfalls. The access road continues from the Carmel Mountain Road outfall to the first railroad trestle along the toe of slope of the railroad berm to minimize the temporary impact to sensitive habitat and compensatory mitigation. This segment will be temporary but remain for sub-phase 1C construction and into the adaptive management period of the restoration that is estimated at approximately five years. Following the adaptive management period, the temporary access road will be removed, and the habitat restored.

Access Road 2 is along the southern perimeter of the Project will utilize the existing paved Flintkote Road from Estuary Way to the State Park Ranger's Residence followed by an upgraded 15 feet access road using the existing road. The existing road is paved but has been subject to erosion and will need to be upgraded for

construction vehicle traffic by filling in ruts, improving drainage, expanding from approximately 10 feet to 15-feet in width, and covering with aggregate. In addition, portions of this road and adjacent disturbed upland habitat may be utilized for onsite permanent soil disposal where approved by CSP, creating a more elevated road. Soil placement adjacent to the Marsh Trail will be revegetated with native upland species. This access road will terminate at an existing turnaround area at the beginning of the Marsh Trail. This segment of the access road will remain as a vehicle access road through sub-phase 1C and into the adaptive management period of the restoration that is estimated at approximately five years. Following the adaptive management period, the access road will be converted to a 15 feet wide trail. Upgrades will remain and a crushed granite surface added for multi-recreational use and fire control.

From the existing turnaround at the Marsh Trailhead, the temporary Access Road 3 will be constructed along the 2-4-foot-wide Marsh Trail. A temporary 15 feet wide construction access road will be constructed along the Marsh Trail to the former industrial pond. This segment of the access road will be temporary but will remain for sub-phase 1C construction and into the adaptive management period of the restoration that is estimated at approximately five years. Following the adaptive management period, the temporary access road will be removed and a 4- foot hiking trail will remain. The habitat outside of the hiking trail will be restored. The Marsh Trail will be restored in this segment with improvement to control slope erosion and protect biological resources. Conversations with State Parks on the current design have resulted in a re-alignment of this access road to avoid the Marsh Trail along the segment that runs close to the existing marsh and around the pinch point. The realignment will use the existing berm around the former industrial pond as a foundation for a temporary construction road that will extent to the pinch point. This realignment is less impactful as it will be within the area that is planned for excavation for the salt marsh restoration and will be removed as the excavation proceeds from the pinch point to the farther up into the salt marsh restoration. This less impactful re-alignment will be incorporated into the final design.

Access Road 4 will be from the upgraded Flintkote Avenue access road close to the turnaround that will follow the toe of slope and use the top of the grade control features on the upstream end of the sub-phase 1C restoration as a temporary access road. This segment will be temporary but remain for sub-phase 1C construction and into the adaptive management period of the restoration that is five years. Following the adaptive management period, the temporary access road will be removed, and the top of the grade control structure restored to native wetland habitat.

Access Road 5 will be from the paved Flintkote Avenue that connects to the temporary construction access roads along the freshwater management channels from the pilot channel to the grade control feature and channels from Floodplain Enhancement 3 and the Estuary Road outfall. The temporary construction road along the freshwater channel from hydraulic constriction near the downstream end of Coastal Conservancy property to the grade control feature will be removed after construction as this segment will contain cobble to retard the growth of woody vegetation that can impact the capacity of these channels to convey dry weather flow. The habitat within these temporary construction roads will restored with native vegetation after removal of road materials. Access roads from Floodplain Enhancement 3 along the secondary channel to the primary channel and along the primary channel to the hydraulic restriction will remain during the adaptive management period for periodic sediment removal in this area (see Figure 1-17).

Sub-phase 1C Access Roads

The access roads that are used for sub-phase 1B will also be used for sub-phase 1C. Access to the marsh plain for construction of new channels and grading will be from the two main access roads implemented in sub-phase 1B and then using the alignment of new channels and areas that contain non-native rye grass. To best sustain remaining salt marsh, access to existing salt marsh that have not been degraded by non-native grasses will be avoided unless located where new tidal channels are planned to increase tidal inundation and frequency.

1.4.6 Temporary Stockpile Areas

As shown on Figure 1-10 and highlighted on Figure 1-17, five temporary stockpile areas are planned. The stockpiles will serve to dry and stage material for fill or haul-off. Floodplain Enhancement 3, a disturbed area that is owned by the City, will be the stockpile area for sub-phase 1A, 1B, and 1C (Stockpile 1). Stockpile 2 area for sub-phase 1B will be located at the upstream end of the secondary freshwater management channel within an area that is predominately degraded salt marsh. The temporary Stockpile 3 area will be located off of the temporary access road near the western berm of the former wastewater pond in an area containing ice plant and non-native rye grass. Two additional stockpile areas (4 and 5) are planned in the upstream end of the sub-phase 1C area. The larger area will hold dredged material from the removal of the sill sediments from the tidal channel from the downstream end of sub-phase 1C to the inlet. The tidal channel dredging will be performed during sub-phase 1B. The dredged material will be placed in this stockpile for use in final grading during sub-phase 1C.

1.4.7 On-site or Off-site Sediment Placement Sites

Based on the geotechnical analysis of sediment samples within the Phase 1 area, excavated materials are potentially suitable material for both beach replenishment and near shore placement to control beach erosion. Materials excavated from the Phase 1 project and meeting the criteria for geotechnical and chemical properties per the permit requirements will be beneficially used and placed along the beach and/or near shore area of the Torrey Pines State Beach. Materials containing a higher percentage of coarse material will be beneficially used and placed on the beach for beach replenishment. These beneficial uses will be implemented to the extent feasible. Remaining excavated material not used on-site or for beach and near-shore placement, will be taken to the City's Miramar Solid Waste Facility or other approved solid waste facility.

Sediments removed from the Floodplain Enhancements post-construction as part of the operations and maintenance activities that are suitable will be placed on Torrey Pines State Beach for beach replenishment beneficial use. Sediments from the Floodplain Enhancements for sediment management that are not suitable for beach replenishment, will be taken to the City's Miramar Solid Waste Facility or other approved solid waste facility. The frequency of beach replenishment activities is anticipated to correspond to the frequency of floodplain enhancements maintenance. The frequency of sediment removal from the Floodplain Enhancements and Dunhill Ditch will depend on the number and intensity of the storm events during the wet season. It is estimated that removal of sediment from the Floodplain Enhancements and Dunhill Ditch will be needed at least annually prior to the storm season and at least once following a larger storm event. The frequency will be based on the amount of sediment accumulated. The frequency and duration of these activities are defined in the Permit Level Operations and Maintenance Plan.

1.4.8 Construction Activities and Schedule

Project construction of the Phase 1 Project is expected to be completed over three to four construction seasons, beginning with sub-phase 1A and followed by sub-phases 1B and 1C. Construction activities would commence with the installation of construction stormwater pollution prevention BMPs in accordance with the Project Stormwater Pollution Prevention Plan (SWPPP). Following the installation of stormwater BMPs, Project construction work would occur in sub-phases for duration of five to six months. The construction season will be restricted to September 1 through January 31 to avoid impacts to special status bird species during nesting season. It is likely that the need will arise to extend the construction schedule into February and possibly later into the bird nesting season due to weather delays. Activities that extend into this period will be limited and require biological monitoring and Project Design Features described in this report as well as the Air/GHG Assessment Report and Noise Assessment Report. Construction is anticipated to begin the fall of 2025 and extend to 2029 followed by a five-year adaptive management period.

2.0 Methods

Methods presented in this section include a discussion of the regulatory framework, literature review, and field surveys conducted for the Project. A discussion of survey limitations is also included.

2.1 Regulatory Setting

2.1.1 Federal and State Take Authorizations for Listed Species

Federal or State authorizations of impacts to or incidental take of a listed species by a private individual or other entity can be granted in one of the following ways:

- Section 7 of the Federal Endangered Species Act (FESA) stipulates that any Federal action that may affect a species listed as threatened or endangered requires a formal consultation with USFWS to ensure that the action is not likely to jeopardize the continued existence of the listed species or result in destruction or adverse modification of designated critical habitat. 16 U.S.C. 1536(a)(2).
- In 1982, the FESA was amended to give private landowners the ability to develop Habitat Conservation Plans (HCP) pursuant to Section 10(a) of the FESA. Upon development of an HCP, the USFWS can issue incidental take permits for listed species provided specific conditions are met.
- Sections 2090-2097 of the California Endangered Species Act (CESA) require that the State lead agency consult with CDFW on projects with potential impacts on State-listed species. These provisions also require CDFW to coordinate consultations with USFWS for actions involving federally-listed and State-listed species.

2.2 Federal

2.2.1 Federal Endangered Species Act (FESA)

The FESA defines an endangered species as "any species that is in danger of extinction throughout all or a significant portion of its range." A threatened species is defined as "any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range." Under provisions of Section 9(a)(1)(B) of the FESA, it is unlawful to "take" any listed species. "Take" is defined in Section 3(18) of FESA as to: "…harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Further, the USFWS, through regulation, has interpreted the terms "harm" and "harass" to include certain types of habitat modification that result in injury to or death of species as forms of "take." These interpretations are generally considered and applied on a case-by-case basis and often vary from species to species. In a case where a property owner seeks permission from a Federal agency for an action that could affect a federally-listed plant and/or wildlife species, the property owner and agency are required to consult with USFWS. Section 9(a)(2)(b) of the FESA addresses the protections afforded to listed plants.

Federally-Designated Special-Status Species

All references to federally protected species in this BTR (whether listed, proposed for listing, or candidate) include the most current published status or candidate category to which each species has been assigned by USFWS. Additionally, the USFWS' Birds of Conservation Concern 2008 report was published to identify

migratory and non-migratory bird species (beyond those already federally listed) that represent the highest conservation priorities for the USFWS

Migratory Bird Treaty Act (MBTA)

The Migratory Bird Treaty Act (MBTA) (PL 65-186, as amended; 16 USC §§ 703 et seq.) protects most birds regardless of migration. Under the MBTA, birds, their nests, eggs, parts, or products may not be killed or possessed. Game birds are listed and protected except where specific seasons, bag limits, and other features govern their hunting. Exceptions are made for some agricultural pests, which require a USFWS permit. Some other birds that injure crops in California may be taken under the authority of the County Agricultural Commissioner. Permits may be granted for various non-commercial activities involving migratory birds and some commercial activities involving captive-bred migratory birds.

2.2.2 Fish and Wildlife Conservation Act of 1980

The Fish and Wildlife Conservation Act of 1980 (PL 96-366; 16 USC §§2901 et seq.) provides for conservation, protection, restoration, and propagation of certain species, including migratory birds threatened with extinction.

2.2.3 Federal Clean Water Act (CWA)

The Clean Water Act (CWA) regulates the discharge of pollutants to waters of the United States to protect water quality and the beneficial uses of these waters. Through a permit application process, the CWA Section 404 regulates dredge and fill discharges to waters of the United States.

USACE Waters of the U.S.

According to the USACE's Wetland Delineation Manual, wetlands are defined as "those areas that are inundated or saturated by surface or groundwater 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."

In accordance with Section 404 of the CWA, the USACE regulates the discharge of dredged or fill material into Waters of the United States. The term "Waters of the United States" is defined as:

- All traditional navigable waters (TNW) currently used, or used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters subject to the ebb and flow of the tide
- All interstate waters including interstate wetlands
- All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds; the use, degradation, or destruction of which could affect foreign commerce including any such waters, (1) which could be used by interstate or foreign travelers for recreational or other purposes; or (2) from which fish or shellfish are, or could be, taken and sold in interstate or foreign commerce; or (3) which are used or could be used for industries in interstate commerce
- All other impoundments of waters otherwise defined as waters of the United States under the definition
- Tributaries of waters identified above
- The territorial seas
- Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in the paragraphs above (33 Code of Federal Regulations [CFR] Part 328.3[a])

Non-navigable tributaries that do not constitute relatively permanent waters (RPWs; exhibit at least seasonal flow, typically three months) may be considered Waters of the U.S. based on significant nexus standards, which may include assessment of downstream hydrologic and ecological functions of the tributary, as well as connectivity to receiving waters (RPWs and/or TNWs).

Wetlands are delineated using three parameters: hydrophytic vegetation, wetland hydrology and hydric soils. According to USACE, indicators for all three parameters must normally be present to qualify as a wetland.

USACE Non-Wetland Waters of the U.S.

The USACE also requires the delineation of non-wetland jurisdictional Waters of the U.S. These waters must have strong hydrology indicators, such as the presence of seasonal flows and an ordinary high watermark (OHWM). An ordinary high watermark is defined as:

> . . . that line on the shore established by the fluctuations of water and indicated by physical characteristics such as [a] clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas (33 CFR Part 328.3).

Areas delineated as non-wetland jurisdictional waters may lack wetland vegetation or hydric soil characteristics. Hydric soil indicators may be missing because topographic position precludes ponding and subsequent development of hydric soils. Absence of wetland vegetation can result from frequent scouring due to rapid water flow. These types of jurisdictional waters are delineated by the lateral and upstream/downstream extent of the OHWM of the particular drainage or depression.

2.3 State

2.3.1 State of California Endangered Species Act (CESA) and Associated Regulations

CESA provides protections for plant and animal species listed as threatened or endangered by the Fish and Game Commission. Candidate species may be afforded temporary protection at the discretion of the Fish and Game Commission. Unlike FESA, CESA does not list invertebrate species.

Article 3, Sections 2080 through 2085 of the CESA addresses the taking of threatened, endangered, or candidate species by stating "No person shall import into this state, export out of this state, or take, possess, purchase, or sell within this state, any species, or any part or product thereof, that the commission determines to be an endangered species or a threatened species, or attempt any of those acts, except as otherwise provided." Under the CESA, "take" is defined as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." Exceptions authorized by the state to allow "take" require permits or memoranda of understanding and can be authorized for endangered species, threatened species, or candidate species for scientific, educational, or management purposes, and for take incidental to otherwise lawful activities.

State-Designated Special-Status Species

Some mammals and birds are protected by the State as Fully Protected (FP) Mammals or FP Birds, as described in the California Fish and Game Code, Sections 4700 and 3511, respectively. California Species of

Special Concern (SSC) are species designated as vulnerable to extinction due to declining population levels, limited ranges, and/or continuing threats. This list is primarily a working document for the CDFW's California Natural Diversity Database (CNDDB) Project. Informally listed taxa are not protected but warrant consideration in the preparation of biological reports. For some species, the CNDDB is only concerned with specific portions of the life history, such as roosts, rookeries, or nest sites.

In addition to formal listing under FESA and CESA, species receive additional consideration by CDFW and local lead agencies during the CEQA process. Species that may be considered for review are included on a list of "Species of Special Concern," developed by CDFW. The list tracks species in California whose numbers, reproductive success, or habitat may be threatened. See Section 3.7 for a discussion of the sensitive species evaluated in the City.

California Rare Plant Rank

The California Native Plant Society (CNPS) is a private plant conservation organization dedicated to the monitoring and protection of special-status plant species in California. The group's publication, California Native Plant Society's Inventory of Rare and Endangered Plants of California, separates plants of interest into five categories, which identify or describe degrees of concern for a species. The Inventory compiles information focusing on geographic distribution and qualitative characterization of Rare, Threatened, or Endangered vascular plant species of California. It also serves as the candidate list for potential threatened and endangered species by the CDFW.

The following identifies the definitions of the CNPS listings:

- **List 1A:** Plants presumed extinct in California
- **List 1B:** Plants rare, threatened, or endangered in California and elsewhere
- **List 2:** Plants rare, threatened, or endangered in California, but more numerous elsewhere
- **List 3:** Plants about which we need more information – A Review List
- **List 4:** Plants of limited distribution – A Watch List

2.3.2 California Environmental Quality Act (CEQA)

Shortly after the United States Federal government passed the National Environmental Policy Act (NEPA), CEQA was passed in 1970 to institute a statewide policy of environmental protection. CEQA does not directly regulate land uses, but instead requires State and local agencies within California to follow a protocol of analysis and public disclosure of environmental impacts of proposed projects to adopt all feasible measures to mitigate those impacts. CEQA makes environmental protection a mandatory part of every California State and local agency's decision-making process.

CEQA Thresholds of Significance

Environmental impacts relative to biological resources are assessed using impact significance threshold criteria, which reflect the policy statement contained in CEQA, Section 21001(c) of the California Public Resources Code. Accordingly, the State Legislature has established it to be the policy of the State of California to:

> "Prevent the elimination of fish or wildlife species due to man's activities, ensure that fish and wildlife populations do not drop below self-perpetuating levels, and preserve for future generations representations of all plant and animal communities…"

Determining whether a project may have a significant effect or impact plays a critical role in the CEQA process. According to CEQA, Section 15064.7 (Thresholds of Significance), each public agency is encouraged to develop and adopt (by ordinance, resolution, rule, or regulation) thresholds of significance that the agency will use in the determination of the significance of environmental effects. A threshold of significance is an identifiable quantitative, qualitative, or performance level of a particular environmental effect, non-compliance with which means the effect will normally be determined to be significant by the agency and compliance with which means the effect normally will be determined to be less than significant. In the development of thresholds of significance for impacts to biological resources, CEQA provides guidance primarily in Section 15065, Mandatory Findings of Significance, and the CEQA Guidelines, Attachment G, Environmental Checklist Form. Section 15065(a) states that a project may have a significant effect where:

> "The project has the potential to: substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or wildlife community, substantially reduce the number or restrict the range of an endangered, rare, or threatened species, …"

For the purpose of this BTR, impacts to biological resources are considered potentially significant (before considering offsetting mitigation measures) if one or more of the following criteria discussed below would result from implementation of the Project.

Criteria for Determining Significance Pursuant to CEQA

CEQA Significance Determination Thresholds may be used to determine a project's potential impacts; however, the City utilizes regionally specific analytical tools in identifying Significance Thresholds, per the City of San Diego California Environmental Quality Act Significant Determination Thresholds, 2016. Even if a project meets CEQA thresholds, there may be substantial evidence of significant impact even when a project does not exceed the threshold. Attachment G of the 1998 State CEQA guidelines indicate that a project may be deemed to have a significant effect on the environment if the project is likely to:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.

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

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

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

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

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

CEQA Guidelines Section 15380

CEQA requires evaluation of a project's impacts on biological resources and provides guidelines and thresholds for use by lead agencies for evaluating the significance of proposed impacts. Furthermore, pursuant to the CEQA Guidelines Section 15380, CEQA provides protection for non-listed species that could potentially meet the criteria for state listing. For plants, CDFW assigns CRPRs to species categorized as List 1A, 1B, or 2 from the CNPS's Inventory of Rare and Endangered Plants in California, which may meet the criteria for listing and should be considered under CEQA. CDFW also recommends protection of plants, which are regionally important, such as locally rare species, disjunctive populations of more common plants, or plants on the CNPS Lists 3 or 4.

2.3.3 Native Plant Protection Act

The Native Plant Protection Act (NPPA) was enacted in 1977 and allows the California Fish and Game Commission to designate plants as rare or endangered. There are 64 species, subspecies, and varieties of plants that are protected as rare under the NPPA. The NPPA prohibits take of endangered or rare native plants, but includes some exceptions for agricultural and nursery operations, emergencies, and/or with proper notification to the CDFW for vegetation removal from canals, roads, and other sites, changes in land use, and in certain other situations.

2.3.4 Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (California Water Code §§13000 et seq.) is the State's primary water law. It gives the State Water Resources Control Board (SWRCB) and the nine regional water quality control boards substantial authority to regulate water use of surface and sub-surface waters.

Pursuant to Section 13000 et seq. of the California Water Code (the 1969 Porter-Cologne Water Quality Control Act), RWQCB is authorized to regulate any activity that would result in discharges of waste or fill material to waters of the state, including "isolated" waters and wetlands (e.g., vernal pools and seeps). Waters of the State include any surface water or groundwater within the boundaries of the State (California Water Code Section 13050[e]). RWQCB also adopts and implements water quality control plans (basin plans) that recognize and are designed to maintain the unique characteristics of each region with regard to natural water quality, actual and potential beneficial uses, maintaining water quality, and addressing the water quality problems of that region.

Designated beneficial uses of State waters that may be protected against quality degradation include preservation and enhancement of fish, wildlife, designated biological habitats of special significance, and other aquatic resources or preserves.

2.3.5 CDFW Jurisdictional Waters

Under Sections 1600–1607 of the Fish and Game Code, CDFW regulates activities that would divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake that supports fish or wildlife. CDFW has jurisdiction over riparian habitats (e.g., riparian woodland) associated with watercourses. CDFW jurisdictional waters extend from the outer edges of riparian vegetation or between the tops of the banks of streams or lakes, whichever is wider. Although CDFW does not regulate vernal pools

under Section 1602 of the Fish and Game Code, CDFW will assert jurisdiction over isolated riparian features (including vernal pools) if State threatened and/or endangered species are present, as outlined in the CESA or if resources are provided directly or indirectly to fish and wildlife of the region. CDFW may also assume jurisdiction over modified or man-made waterways; such jurisdiction is generally based on the value of such features to support riparian or aquatic plant or animal species. For clarification of features that may be subject to CDFW jurisdiction, the CDFW Legal Advisor has prepared the following opinion (CDFG 1994):

- Natural waterways that have been subsequently modified and which have the potential to contain fish, aquatic insects, and riparian vegetation will be treated like natural waterways.
- Artificial waterways that have acquired the physical attributes of natural stream courses and which have been viewed by the community as natural stream courses should be treated by [CDFW] as natural waterways.
- Artificial waterways without the attributes of natural waterways should generally not be subject to Fish and Game Code provisions.

CDFW jurisdictional limits may also include artificial stock ponds and irrigation ditches constructed within uplands, and outer drip line limits of adjacent riparian habitat supported by a river, stream, or lake regardless of the riparian area's federal wetland status or its location beyond the defined bed, bank, or channel.

2.3.6 RWQCB Jurisdictional Waters

RWQCB is the regional agency responsible for protecting water quality in California. The jurisdiction of this agency includes Waters of the State as mandated by the Federal CWA Section 401. When CWA Section 404 jurisdiction is not present for isolated waters, the RWQCB may assert jurisdiction via the California Porter-Cologne Water Quality Control Act. Waters of the State are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state". The Porter-Cologne Water Quality Control Act provides a regulatory framework to provide comprehensive protections for surface and groundwater within the State of California. Waters subject to jurisdiction under the Porter-Cologne Water Quality Control Act require that any discharge that may negatively impact or otherwise affect a Water of the State must coordinate with RWQCB. During coordination, RWQCB may require implementation of mitigation measures or other requirements to protect overall water quality.

2.3.7 California Fish and Game Code

The California Fish and Game Code (CFGC) regulates the taking or possession of birds, mammals, fish, amphibians, and reptiles, as well as natural resources such as wetlands and Waters of the State. It includes the CESA (Sections 2050–2115) and Streambed Alternation Agreement regulations (Sections 1600–1616 CFGC Sections 1600–1616). Pursuant to Section 1600 et seq. of the CFGC, the CDFW (formerly California Department of Fish and Game) regulates project activities that would substantially alter the flow, bed, channel, or banks of streams or lakes, unless certain conditions outlined by CDFW are met by the applicant. The limits of CDFW jurisdiction are defined in CFGC Section 1600 et seq. as the "bed, channel, or bank of any river, stream[1], or lake designated by CDFW in which there is at any time an existing fish or wildlife resource or from which these

[1] Title 14 California Code of Regulations (CCR) 1.72 defines a stream as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation."

resources derive benefit."[2] However, in practice, CDFW usually extends its jurisdictional limit and assertion to the top of a bank of a stream, the bank of a lake, or outer edge of the riparian vegetation, whichever is wider.

In some cases, drainage ditches and retention ponds[3] can be potentially considered under the regulatory administration of CDFW. CDFW provides specific guidance concerning its regulatory administration in California Code of Regulations Title 14 Section 720 (Designation of Waters of Department Interest):

> For the purpose of implementing Sections 1601 and 1603 of the Fish and Game Code, which requires submission to the Department of general plans sufficient to indicate the nature of a project for construction by or on behalf of any person, governmental agency, state or local, and any public utility, of any project which will divert, obstruct, or change the natural flow or bed of any river, stream, or lake designated by the Department, or will use material from the streambeds designated by the Department, all rivers, streams, lakes, and streambeds in the State of California, including all rivers, streams, and streambeds, which may have intermittent flows of water, are hereby designated for such purpose (italics added.)

CFGC Sections 2050–2115 – Any proposed impact to State-listed species within or adjacent to a project area would require a permit under CESA. CESA generally parallels the main provisions of FESA and is administered by CDFW. CESA prohibits take of wildlife and plants listed as threatened or endangered by the CFGC. "Take" is defined under the CFGC as any action or attempt to "hunt, pursue, catch, capture, or kill." Therefore, take under CESA does not include "the taking of habitat alone or the impacts of the taking."[4] Rather, the courts have affirmed that, under CESA, "taking involves mortality."

CESA allows exceptions to the take prohibition for take that occurs during otherwise lawful activities. The requirements of an application for an incidental take permit under CESA are described in Section 2081 of the CFGC. Incidental take of State-listed species may be authorized if an applicant submits an approved plan that minimizes and "fully mitigates" the impacts of this take. Therefore, any proposed impact to State-listed species within or adjacent to a project area would require an incidental take permit under CESA.

CFGC Section 2080.1 allows an applicant who has obtained a federal incidental take statement as part of a Biological Opinion pursuant to a FESA Section 7 consultation or an incidental take permit under FESA Section 10(a) to notify the CDFW Director in writing that the applicant has been issued an incidental take statement or permit pursuant to FESA and to submit a copy to the CDFW Director. The CDFW Director then has 30 days to determine whether the incidental take statement or permit is "consistent" with CESA in the form of a written "consistency determination." If the CDFW Director determines that the incidental take statement or permit is consistent with CESA, the applicant does not need to obtain separate take authorization from CDFW in the form of an incidental take permit under CFGC Section 2081(b) and (c). However, consistency determinations apply only in those situations where the affected species is listed under both FESA and CESA. If the species is listed under CESA only, an applicant must obtain an incidental take permit under CFGC Section 2081(b) and (c).

CFGC Section 3503 and 3512 – Under CFGC Division 4, Part 2, Chapter 1, Section 3503.5, "it is unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds of prey), or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto," where "take" is defined under Division 0.5, Chapter 1, Section 86 as "hunt, pursue,

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2 This also includes the habitat upon which they depend for continued viability (CFGC Division 5, Chapter 1, Section 45, and Division 2, Chapter 1, Section 711.2[a]).

3 Title 14 CCR 1.56 defines a lake as a feature that "includes lakes or man-made reservoirs."

4 *Environmental Council of Sacramento v. City of Sacramento*, 142 Cal. App. 4th 1018 (2006).

catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." In addition, CFGC 3512 also prohibits take of birds and active nests. Construction activities that result in abandonment of an active bird nest in areas adjacent to the disturbance may violate sections of the CFGC.

2.3.8 California Coastal Commission

The CCC regulates activities found within wetlands in the coastal zone. The Coastal Act Section 30121 (California Coastal Act as of January 1, 2005) defines wetlands as "lands within the coastal zone which may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, and fens." Subsequent Statewide Interpretive guidelines have refined the definition based upon the USFWS definition (Cowardin et al. 1979), which is as follows: "Wetlands are lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water. For the purposes of this classification, wetlands must have one or more of the following three attributes: (1) at least periodically, the land supports predominantly hydrophytes, (2) the substrate is predominantly undrained hydric soil, and (3) the substrate is non-soil and is saturated with water or covered by shallow water at some time during the growing season of each year." This definition is used as a guide for defining wetlands. The CCC can also rely on other information, advice, and judgment of other experts in determining jurisdiction.

Section 30233(b) of the California Coastal Act specifies that dredge spoils suitable for beach nourishment should be transported for such purposes to appropriate beaches or into suitable longshore current systems.

2.4 Local

2.4.1 City of San Diego Multiple Species Conservation Program (MSCP)

The MSCP was developed by the City to preserve a network of habitat and open space, protect bio-diversity, and enhance the region's quality of life. The MSCP covers 85 species, including state and federally listed plant and wildlife species, narrow endemic species, and other species considered locally sensitive and/or otherwise prone to decline due to urbanization. Core biological resource areas necessary to sustain covered species populations are identified within the City's MHPAs. The City has entered into an Implementing Agreement with the Federal and State Wildlife Agencies to ensure implementation of the MSCP for projects that occur on and/or adjacent to lands included in the MSCP (City of San Diego 1998).

The MSCP is a regional, multijurisdictional HCP that provides a coordinated program issuing take authorization for covered species to projects that comply with the MSCP. MSCP goals are the preservation of a network of habitat and open space, the protection of biodiversity, and the enhancement of the region's quality of life. The MSCP also provides an economic benefit by reducing constraints on future development and decreasing the costs of compliance with federal and state laws protecting biological resources. The MSCP Plan was developed cooperatively by participating jurisdictions and special districts in partnership with wildlife agencies, property owners, and representatives of the development industry and environmental groups. The plan was designed to preserve native vegetation and meet the habitat needs of multiple species rather than focus preservation efforts on one species at a time. By identifying priority areas for conservation and other areas for future development, the MSCP streamlines existing permit procedures for development projects that impact habitat.

The ultimate goal of the MSCP is to create a regional habitat preserve system within the MHPA while allowing development projects to occur. The MSCP provides for a streamlined development review system that avoids the traditional project-by-project review by regulatory agencies.

The City's MSCP Subarea Plan (City of San Diego 1997a) was prepared pursuant to the general outline developed by USFWS and CDFW to meet the requirements of the California Natural Communities Conservation Planning Act of 1992. The MSCP Subarea Plan forms the basis for the implementing agreement, which is the contract between the City and the wildlife agencies to ensure implementation of the MSCP Subarea Plan and thereby allow the City to issue take permits at the local level (City of San Diego 1997b).

In addition to the City's MSCP Subarea Plan, other local planning policy documents include the City of San Diego Guidelines for Conducting Biology Surveys and the City of San Diego Land Development Code Biology Guidelines. As described in these guidelines, the City established ESL regulations to ensure protection of resources consistent with CEQA and the City's MSCP. ESLs include lands within the MHPA, wetlands, sensitive vegetation communities, habitat for listed species, lands supporting narrow endemics, and steep slopes. The regulations encourage avoidance and minimization of impacts to ESLs. Biology Guidelines have been established that define the survey and impact assessment methodologies and mitigation requirements for unavoidable impacts (City of San Diego 2011a).

Sensitive biological resources are defined by the City's Municipal Code (Section I) as:

- Lands that have been included in the MHPA as identified in the City's MSCP Subarea Plan
- Wetlands (as defined by the Municipal Code, Section 113.0103)
- Lands outside of the MHPA that contain Tier I habitats, Tier II habitats, Tier IIIA habitats, or Tier IIIB habitats as identified in the Biology Guidelines of the Land Development Code
- Lands supporting species or subspecies listed as rare, endangered, or threatened
- Lands containing habitats with narrow endemic species as listed in the Biology Guidelines of the Land Development Code
- Lands containing habitats of covered species as listed in the Biology Guidelines of the Land Development Code

2.4.2 City Environmentally Sensitive Lands (ESL), Biology Guidelines, and CEQA Significance Thresholds

ESL regulations were adopted to protect, preserve, and, where damaged, restore the environmentally sensitive lands of San Diego. Under ESL regulations, upland habitats are classified into four tiers in descending order based on sensitivity. Infringement into non-wetland ESL is not restricted outside of the MHPA but impacts to ESLs must be mitigated. Steep hillsides are also considered ESLs and are bound by a set of specific development guidelines (City of San Diego 1998).

The City's Biology Guidelines presented in the Land Development Manual are intended "to aid in the implementation and interpretation of the Environmentally Sensitive Lands Regulations, San Diego Land Development Code (LDC), Chapter 14, Division 1, Section 143.0101 et seq., and the Open Space Residential (OR-1-2) Zone, Chapter 13, Division 2, Section 131.0201 et seq." (City of San Diego 2018). The Biology Guidelines also provide standards for literature review, field surveys, impact analysis, and the determination of mitigation under CEQA and the USFWS Candidate Conservation Agreement.

The City's CEQA Significance Determination Thresholds are developed to assist in determining whether, based on substantial evidence, a project may have a significant effect on the environment under Section 21082.2 of the CEQA (City of San Diego 2020). For biological resources, this guidance document provides a two-step procedure that includes identification of resources and then the sensitivity of those resources that may be impacted by the project. Guidance is provided for the assessment of direct, indirect, and cumulative impacts.

2.5 Literature Review

Prior to conducting biological surveys in 2016, a comprehensive records search was conducted to determine if sensitive species or related resources have been reported in the vicinity of the survey area (see Figures 2-1 and 2-2). The following databases were queried:

- CDFW's CNDDB, including endemic species and covered species of the City's MSCP
- USFWS-designated critical habitat
- USFWS species occurrence data
- County of San Diego SanBIOS database
- CNPS Online Inventory of Rare and Endangered Plants of California (CDFW 2016, USFWS 2015a, USFWS 2015b, SanGIS 2015, and CNPS 2016).
- U.S. Geological Survey (USGS) and National Agriculture Imagery Program (NAIP) aerial images (USGS 2003, NAIP 2014)
- U.S. Department of Agriculture (USDA) soils survey (USDA 1973)
- National Wetland Inventory (NWI) databases were also reviewed (USFWS 2016)
- The LPLEP, written by ESA with contributions from the LPLF; reviewed in the context of the BSA boundaries (2015).

In addition, information from previous biological surveys provided to Blackhawk were also reviewed, including:

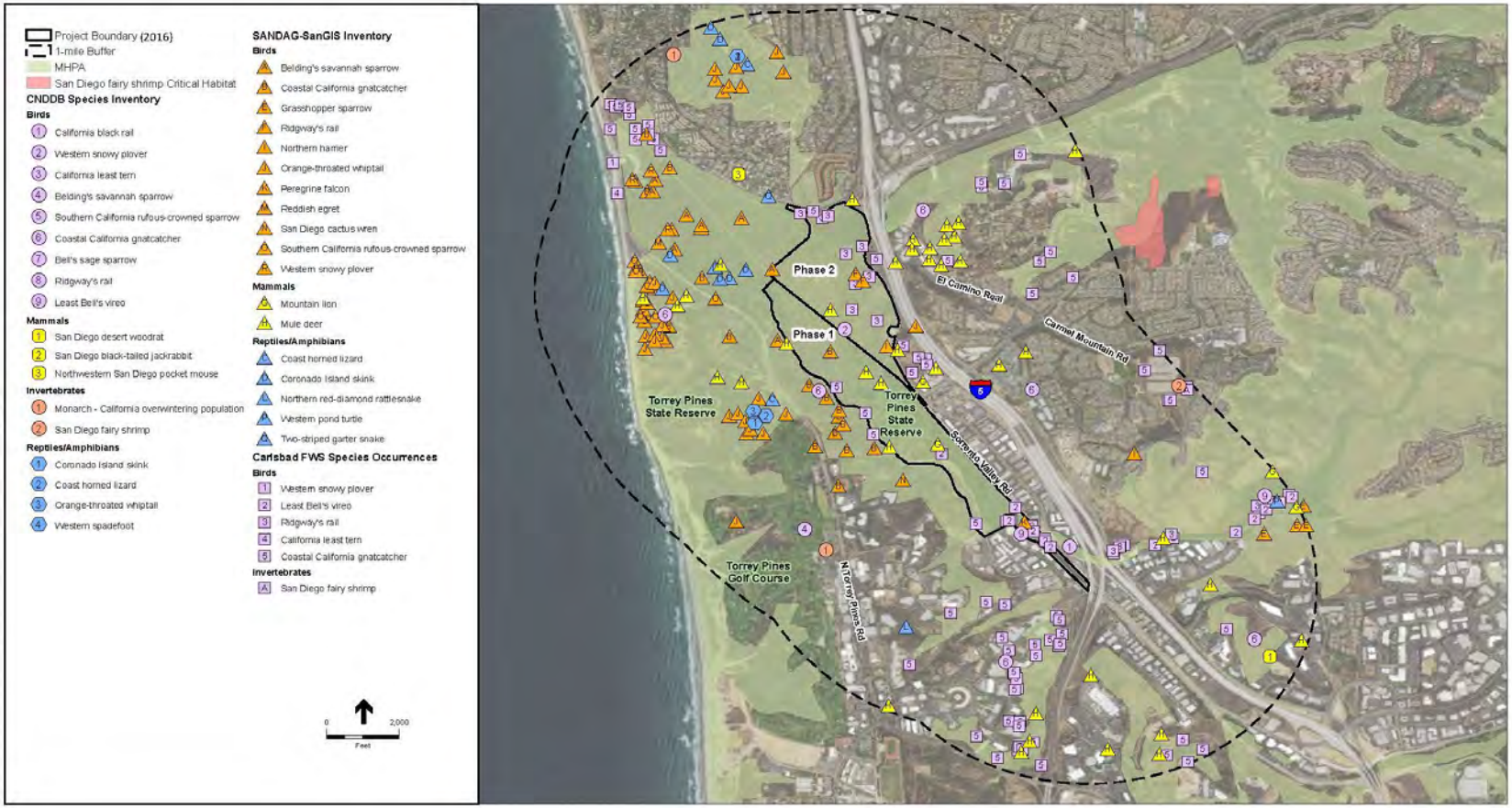
- Program Environmental Report for the LPLEP, San Diego, California (AECOM, 2020)
- LPLEP Plan and Program [Coppock, D., 1985 (updated 2016)]
- TPSNR Utility Modernization Project Biological Technical Report (ECORP Consulting Inc. and Blackhawk Environmental, 2019)
- LPLEP (ESA, 2015)
- Draft BTR, Sorrento/Los Penasquitos Waterways Restoration and Improvement Program, City of San Diego, San Diego County, California (ESA, 2016a)
- 45-Day Report for Least Bell's Vireo and Southwestern Willow Flycatcher Surveys Conducted for the Sorrento /Los Peñasquitos Waterways Restoration and Improvement Project, San Diego, California (ESA, 2016b)
- 45-Day Report for Coastal California Gnatcatcher Surveys Conducted for the Sorrento / Los Peñasquitos Waterways Restoration and Improvement Project, San Diego, California (ESA, 2016c)
- Biological Resources Constraints Analysis, Sorrento Valley Channel Restoration Project, City of San Diego, San Diego County, California (ESA, 2016d)
- 2015 Least Bell's Vireo Focused Survey Results for the Sorrento Valley Double Track Transit Project. City of San Diego, California (Hayworth, 2015)

- Results of a Focused Survey for the Light-footed Ridgway's Rail at the Sorrento Valley Double Track Project, City of San Diego, San Diego County, California (Konecny, 2015)
- Los Penasquitos Lagoon Bridge Replacement Project: July 2016 Avian Preconstruction Survey Summary (Schaefer, 2016)
- Los Penasquitos Lagoon Bridge Replacement Project 2017 Pre-breeding Avian Season Survey Summary (Schaefer, 2017)
- Avian Status Survey Report for Light-Footed Ridgway's Rail and Belding's Savannah Sparrow in Los Penasquitos Lagoon (Schaefer, 2019)
- The Physical, Chemical, and Biological Monitoring of Los Peñasquitos Lagoon (Crooks, et. al. 1991 through 2020)
- Los Peñasquitos Lagoon Restoration Project – Phase 1 Aquatic Resources Delineation Report (Rocks, 2022)
- California Rapid Assessment Report for Los Peñasquitos Restoration Phase 1 Project (Dudek, 2022)
- Draft Los Peñasquitos Lagoon Restoration– Phase 1Restoration Plan/Habitat Mitigation and Monitoring Plan (Dudek, 2022)

This information was used to identify special-status species with the potential to occur within the BSA, based on species distribution, habitat preferences and conditions. The results of the literature reviews were used to focus biological survey efforts for special-status species perceived to have the potential to occur on and/or adjacent to the Project site.

Figure 2-1: Literature Results for Special-Status Plants

Figure 2-2: Literature Results for Special-Status Wildlife



2.6 Survey Methods

All biological surveys were performed according to the latest protocols and MSCP guidelines for biological surveys and reporting. In addition, focused surveys for special-status species adhered to the latest State and/or federal protocols and/or guidelines, as described below. Table 2-1 below provides survey type, date, and survey personnel for surveys conducted between 2016 and 2023 (unless otherwise noted in the survey descriptions provided in the subsections below).

Table 2-1: 2016-2022 Field Survey Schedule

Year	Survey Type/Number	Date	Personnel	Area
2016	**General Reconnaissance Surveys**			
		1/29/2016	AB, MH	Phase 1
		2/4/2016	AB, DS, MH	Phase 1
	Jurisdictional Delineation Surveys			
		3/30/2016	JF, RH	Phase 1
		6/1/2016	JF, MI, RB, ZC	Phase 1
		6/2/2016	DH, JF, MI, RB	Phase 1 and 2
	California Rapid Assessment Method (CRAM) Surveys			
		3/30/2016	JF, RH	Phase 1
		5/24/2016	JP, RH	Phase 2
	Rare Plant Surveys			
	Survey 1	4/5/2016	AB, JP, TM	Phase 1
	Survey 1	5/11/2016	DK, AB	Phase 2
	Survey 1	5/12/2016	DK, AB	Phase 1
	Survey 2	6/13/2016	RS, AB	Phase 1
	Survey 2	6/14/2016	RS, AB	Phase 2
	Light-Footed Ridgway's Rail (LFRR) and Belding's Savannah Sparrow (BSSP)			
	Survey 1 (LFRR and BSSP)	4/14/2016	JK	Phase 1
	Survey 2 (LFRR)	4/21/2016	JK	Phase 1
	Survey 3 (LFRR and BSSP)	4/28/2016	JK	Phase 1
	Survey 4 (LFRR)	5/5/2016	JK	Phase 1
	Survey 5 (LFRR)	5/12/2016	JK	Phase 1
	Survey 6 (LFRR)	5/20/2016	JK	Phase 1
	Least Bell's Vireo (LBVI) and Southwestern Willow Flycatcher (SWFL)			
	Survey 1 (LBVI)	4/11/2016	AB, JP	Phase 1
	Survey 2 (LBVI)	4/21/2016	AB, RH	Phase 1
	Survey 3 (LBVI)	5/2/2016	AB, RH	Phase 1
	Survey 1 (LBVI)	5/4/2016	AB, RH	Phase 2
	Survey 2 (LBVI)	5/19/2016	AB, RH	Phase 2
	Survey 4 (LBVI), Survey 1 (SWFL)	5/23/2016	AB, Blackhawk	Phase 1
	Survey 2 (SWFL)	5/25/2016	Blackhawk	Phase 2
	Survey 3 (LBVI)	5/31/2016	AB, DH	Phase 2
	Survey 5 (LBVI), Survey 2 (SWFL)	6/6/2016	AB, Blackhawk	Phase 1
	Survey 4 (LBVI), Survey 2 (SWFL)	6/10/2016	AB, Blackhawk	Phase 2
	Survey 6 (LBVI), Survey 3 (SWFL)	6/16/2016	AB, Blackhawk	Phase 1
	Coastal California Gnatcatcher			

Table 2-1: 2016-2022 Field Survey Schedule

Year	Survey Type/Number	Date	Personnel	Area
	Survey 1	4/5/2016	JP, AB	Phase 1
	Survey 2	4/29/2016	AB, RH	Phase 1
	Survey 1	5/10/2016	AB, RH	Phase 2
	Survey 3	5/17/2016	AB, RH	Phase 1
	Survey 2	5/19/2016	AB, RH	Phase 2
	Survey 3	5/26/2016	AB, RH	Phase 2
2019	**Light-Footed Ridgway's Rail (LFRR) and Belding's Savannah Sparrow (BSSP)**			
	Survey 0 (LFRR and BSSP)	1/21/2019	CS	Phase 1 and Phase 2
	Survey 1 (LFRR and BSSP)	2/25/2019	JKO, BP	Phase 1 and Phase 2
	Survey 2 (LFRR and BSSP)	3/15/2019	BP	Phase 1 and Phase 2
	Survey 3 (LFRR and BSSP)	4/4/2019	JKO, BP, CS	Phase 1 and Phase 2
	Survey 4 (LFRR and BSSP)	4/9/2019	BP	Phase 1 and Phase 2
	Survey 5 (LFRR and BSSP)	4/12/2019	JKO	Phase 1 and Phase 2
	Survey 6 (LFRR and BSSP)	4/19/2019	JKO	Phase 1 and Phase 2
2020	**Rare Plant/Vegetation Mapping Surveys**			
	Survey 1	5/15/2020	IM, KA, KQ, RQ, SR	Phase 1
	Survey 1	5/22/2020	KA, RQ, SR	Phase 1
	Survey 1	5/26/2020	KA, RQ, SR	Phase 1
	Survey 1	6/3/2020	IM, KA, RQ, SR	Phase 1
	Survey 2	7/23/2020	KA	Phase 1
	Survey 2	7/24/2020	KA	Phase 1
	Survey 2	7/28/2020	IM, RQ	Phase 1
	Survey 2	7/29/2020	IM, KQ	Phase 1
	Survey 2	7/30/2020	IM, LB, RQ, SR	Phase 1
	Survey 2	8/6/2020	KA	Phase 1
	Survey 3	9/9/2020	KQ	Phase 1
	Jurisdictional Delineation/Vegetation Mapping Surveys			
		8/6/2020	KA	Phase 1
		8/19/2020	DJ, KA, KQ, TG	Phase 1
		8/26/2020	DJ, KA, SR, TG	Phase 1
2021	**Rare Plant/Vegetation Mapping Surveys**			
	Survey 4	4/22/2021	DJ, HM	Phase 1
	Jurisdictional Delineation/Vegetation Mapping Surveys			
		4/22/2021	DJ, HM	Phase 1
	California Rapid Assessment Method (CRAM) Surveys			
		12/2/2021	LA, CA	Phase 1
		12/8/2021	EM, CA	Phase 1
		12/22/2021	EM, CA	Phase 1
2022	**Jurisdictional Delineation Surveys**			
		1/11/2022	BB, IH, KW, SK, SS	Phase 1
		1/12/2022	BB, KW, SK	Phase 1
		1/20/2022	KW, SK	Phase 1
	Light-Footed Ridgway's Rail (LFRR) and Belding's Savannah Sparrow (BSSP)			

Table 2-1: 2016-2022 Field Survey Schedule

Year	Survey Type/Number	Date	Personnel	Area
	Survey 1 (LFRR), Survey 1 (BSSP)	3/24/2022	AG, BS	Phase 1
	Survey 1 (LFRR)	3/25/2022	AG	Phase 1
	Survey 2 (LFRR)	4/5/2022	AG	Phase 1
	Survey 2 (LFRR)	4/8/2022	AG	Phase 1
	Survey 2 (LFRR), Survey 1 (BSSP)	4/10/2022	BS (LFRR), AG (BSSP)	Phase 1
	Survey 3 (LFRR)	4/23/2022	AG	Phase 1
	Survey 3 (LFRR), Survey 2 (BSSP)	4/24/2022	AG	Phase 1
	Survey 2 (BSSP)	4/29/2022	BS	Phase 1
	Survey 4 (LFRR), Survey 3 (BSSP)	5/1/2022	AG	Phase 1
	Survey 4 (LFRR)	5/4/2022	BV	Phase 1
	Survey 4 (LFRR)	5/5/2022	BS	Phase 1
	Survey 3 (BSSP)	5/8/2022	AG	Phase 1
	Survey 4 (BSSP)	5/15/2022	AG	
	Survey 5 (LFRR), Survey 4 (BSSP)	5/16/2022	AG	Phase 1
	Survey 5 (LFRR)	5/18/2022	BV	Phase 1
	Survey 5 (LFRR)	5/19/2022	BS	Phase 1
	Survey 6 (LFRR)	6/3/2022	BV	Phase 1
	Survey 6 (LFRR), Survey 5 (BSSP)	6/4/2022	AG	Phase 1
	Survey 6 (LFRR)	6/5/2022	AG	Phase 1
	Survey 5 (BSSP)	6/6/2022	BS	Phase 1
	Least Bell's Vireo (LBVI) and Southwestern Willow Flycatcher (SWFL)			
	Survey 1 (LBVI)	4/12/2022	KA	Phase 1
	Survey 2 (LBVI)	4/21/2022	RQ	Phase 1
	Survey 3 (LBVI)	5/3/2022	KA	Phase 1
	Survey 4 (LBVI), Survey 1 (SWFL)	5/16/2022	KA	Phase 1
	Survey 5 (LBVI), Survey 2 (SWFL)	6/1/2022	KA, RQ (LBVI only)	Phase 1
	Survey 6 (LBVI), Survey 3 (SWFL)	6/13/2022	KA, SR (LBVI only)	Phase 1
	Survey 7 (LBVI), Survey 4 (SWFL)	6/28/2022	KA, SR (LBVI only)	Phase 1
	Survey 8 (LBVI), Survey 5 (SWFL)	7/15/2022	KA, HM (LBVI only)	Phase 1
2023	**Coastal California Gnatcatcher**			
	Survey 1	4/5/2023	KM	Floodplain Enhancement 3
	Survey 2	5/9/2023	KM	Floodplain Enhancement 3
	Survey 3	5/15/2023	KM	Floodplain Enhancement 3

Personnel: AB: Alanna Bennett, AG: Antonette Gutierrez, BB: Brenda Bennett, Blackhawk: Blackhawk Environmental Inc., BP: Bonnie Peterson, BS: Beth Sabiston, BV: B.B. Villanueva, CA: Charles Adams, CS: Christian Schaefer, DH: Dale Hameister, DJ: Desiree Johnson, DS: Darren Smith, EM: Erin McKinney, HM: Hayley Milner, IH: Ian Hirschler, IM: Ian Maunsell, JF: Julie Fontaine, JK: Jennifer Kendrick; JKO: John Konecny JP: Jim Prine, KA: Kris Alberts, KM: Kamarul Muri,

KQ: Katie Quint, KW: Kelsey Woldt, LA: Lindsy Mobley, LB: Lorena Bernal, MI: Michelle Irace, RB: Rocky Brown, RH: Rosanne Humphrey, RS: Robbie Sweet, RQ: Ryan Quilley, SK = Sarah Krejca, SS = Shanti Santulli, SR: Seth Reimers, TG: Tawni Gotbaum, ZC: Zeke Cooley

2.6.1 Light-Footed Ridgway's Rail Surveys – 2015

In 2015, wildlife biologist John Konecny completed focused light-footed Ridgway's rail (*Rallus obsoletus levipes*) surveys for the Sorrento Valley Double Track Project that included portions of the Project site (Konecny, 2015). Six focused light-footed Ridgway's rail survey events were conducted in all appropriate marsh habitat at the Sorrento Valley Double Track Project site between March 30 and May 17, 2015. Dawn surveys were conducted on March 30, April 6, and April 16. Dusk surveys were conducted on April 26, May 6, and May 17. Each survey lasted approximately 2.5 hours. Details regarding these surveys are not readily available and therefore are not included in Table 2-1. The surveys were conducted in accordance with the recommendations provided to the USFWS by the Clapper Rail Study Team (USFWS, 2009). The surveys were conducted by walking along the edge of the habitat and listening for vocalizing rails. If rails were not detected passively, a digital call-prompt of the light-footed Ridgway's rail "dueting" was played with an Apple iPod and amplified speakers at 30-second intervals. A response was listened for approximately 10 minutes before proceeding to the next survey station.

2.6.2 Field Reconnaissance Surveys – 2016

ESA biologist Alanna Bennett conducted a general biological reconnaissance survey on January 29 and February 4, 2016. Mike Hastings, the Executive Director of the LPLF, accompanied Alanna Bennett during both survey visits, and Darren Smith with CSP accompanied Alanna Bennett and Mike Hastings on the February survey visit. During the biological survey, the vegetation communities map prepared by Darren Smith was verified for accuracies, a plant and wildlife species inventory was compiled, species habitat suitability was evaluated, and potential restoration and enhancement sites were assessed. Additionally, site photographs were taken throughout the BSA, and a description of each vegetation community (dominant and non-dominant species, soils, location, etc.) was recorded. Vegetation polygons were then digitized using ArcGIS and Geographic Information System (GIS) coverage was created. Vegetation community classifications used in this BTR follow Holland (1986) and Oberbauer et al. (2008) and are consistent with the classification system used in the MSCP and required by the Biology Guidelines.

Focused surveys for sensitive plants and animals had not yet been conducted; however, all species observed within the BSA during the general biological surveys were identified and recorded. Plant taxonomy follows the Jepson Manual: Vascular Plants of California and the Checklist of Vascular Plants of San Diego County (Baldwin et al. 2012; Rebman and Simpson 2014). Wildlife taxonomy follows the Complete List of Amphibian, Reptile, Bird and Mammal Species in California (CDFW 2014).

Biologists meandered through the Project site and made a concerted effort to survey all accessible areas. Locations were recorded using a tablet running ESRI ArcGis Collector GIS software. A "7-meter rule" was used to determine whether occurrences should be recorded as points or polygons containing multiple individuals (i.e., any individual more than 23 feet from the nearest other individual was counted as a point).

Plant species were identified to species or subspecies level and recorded in field notes. In some cases, surveyors obtained samples from the Project site for later plant identification using a dissecting microscope. Taxonomy of plant species identified within the Survey Area was based on The Jepson Manual (Hickman) and The Jepson Manual, 2nd Ed. (Baldwin et al. 2012).

In addition to documenting plant species, biologists recorded all incidental wildlife occurrences by sight, sound, and/or sign (e.g., tracks, burrows, scat, tracks, etc.).

Table 2-1 provides the survey type, date, and survey personnel for the field reconnaissance surveys conducted in 2016.

2.6.3 Rare Plant Surveys – Spring 2016

Rare plant surveys were conducted by ESA botanists within portions of the BSA containing suitable habitat, which consists of all undeveloped, non-disturbed land cover types. Two separate surveys for rare plants were conducted over the course of the blooming season for those species with potential to occur. To capture the blooming periods of species that may occur in the BSA, the first survey was conducted during April and May, and the second survey was conducted in June. During each visit, ESA botanists surveyed the BSA on foot, walking transects that allowed for full visual coverage of the BSA based on topography and plant density. Botanists documented every plant species encountered during the survey and recorded the locations of special-status species using a Global Positioning System (GPS). Other data recorded included the time of the surveys and weather conditions. Table 2-1 provides the survey type, date, and survey personnel for the rare plant surveys conducted in 2016.

2.6.4 Jurisdictional Delineation Assessments and Surveys – Spring 2016

ESA biologists Julie Fontaine, Zeke Cooley, Rocky Brown, Michelle Irace, and Dale Hameister conducted Project site visits on March 30, June 1, and June 2, 2016, to evaluate potentially jurisdictional features within the BSA, including waterways and associated habitats potentially subject to USACE, CDFW, RWQCB, CCC and City regulations. The purpose of the jurisdictional assessment was to identify regulated wetlands and waters of the United States, the State of California and the City within the BSA.

Prior to field surveys, a desktop analysis was conducted to obtain contextual information relevant to the BSA. ESA conducted a review of available background information, geography, and topography prior to conducting the jurisdictional delineation in March 2016, including reviewing the NWI database. A BSA site map was generated with available aerial photographs and potentially jurisdictional features were identified and marked with lines and Global Positioning System (GPS) coordinates to assist in field verification. Soil types mapped within the BSA were consulted prior to field efforts to target areas with potentially hydric soils. In addition, the following published and grey literature were reviewed and consulted:

- 1996 & 1998 National List of Vascular Plant Species that occur in Wetlands (USFWS 1996b, 1998)
- 2008 U.S. Army USACE of Engineers Regional Supplement to the USACE of Engineers Wetland Delineation Manual: Arid West Region
- Field Guide for Wetland Delineation (1987 USACE Manual) prepared by the Wetland Training Institute (WTI 1999)
- A Field Guide to Lake and Streambed Alteration Agreements (CDFW 1994)
- USFWS Definition of Wetlands adopted by CCC (Cowardin et al. 1979)
- City of San Diego Land Development Code Biology Guidelines (2011)
- California hydric soils list (NRCS 2006)

The delineation was conducted in accordance with the Arid West Regional Supplement to the 1987 Wetlands Delineation Manual, which reflects the required methods by the USACE as well as using the CCC definition of

wetlands (since the Project falls within the Coastal Zone) and the City's definition of wetlands. In addition, CDFW riparian habitat was mapped as jurisdictional based upon the presence of hydrophytic vegetation to the dripline of the riparian vegetation. The CCC and City definition of "wetlands" was met if one or more wetland parameters (soil, hydrology, and/or vegetation) were met. Problem soils existed in the upper portion of the Survey Area as well as several other downstream locations, due to excessive deposition. The Arid West Regional Supplement was used to determine if those problem areas met the USACE wetland definition in those cases. Table 2-1 provides the survey type, date, and survey personnel for the jurisdictional delineation assessments and surveys conducted in 2016.

2.6.5 CRAM Surveys – Spring 2016 and Winter 2021

As indicated in the California Rapid Assessment Method **(**CRAM) User's Guide, Version 6.1 (CWMW 2013a), the CRAM wetland assessment of the Phase 1 (BSA for the Project) and Phase 2 (future phase) areas was conducted by gathering background information about the wetland; classifying the wetland according to the appropriate CRAM typology; confirming the appropriate season and tidal condition; determining the appropriate number, location, and configuration of the Assessment Areas (AAs); conducting an in-office assessment of the stressors and conditions of the AAs and surrounding areas; conducting a CRAM assessment in the field and making adjustments to the AAs as necessary; calculating and analyzing the CRAM scores; and reporting, which includes uploading the CRAM results into a statewide database.

The Phase 1 area consists of both riverine and perennial estuarine wetland areas. Because the CRAM will be used to evaluate the changes in wetland condition after implementing the Project, AA locations were focused in areas that would be restored or otherwise improved by the Project. One circular estuarine (non-saline subtype) AA approximately 60 meters in diameter (AA1-1), and two linear riverine AAs 100 meters in length (AA1-2 and AA1-3) were established in the Phase 1 area. The Phase 2 area consists entirely of perennial estuarine wetlands (both saline and non-saline subtypes). Although freshwater enters the Phase 2 area from creeks upstream, the water is not channelized when it reaches the Phase 2 area, but instead spreads out over the floodplain. Because of land use changes described in Section 1 above, the Phase 2 area is mostly a mosaic of degraded salt marsh, brackish, and freshwater vegetation types. In order to capture the heterogeneity of the area, three AAs were established (see Section 3.4.5). All three AAs were circular in shape with diameters of 110 meters. One AA was placed in each of the following vegetation types: (a) saline, dominated by pickleweed (*Salicornia pacifica*) and alkali heath (*Frankenia salina*) (AA2-1), (b) non-saline, dominated by perennial rye grass and curly dock (*Rumex crispus*) (AA2-2), and (c) non-saline, dominated by cattails (*Typha domingensis*) (AA2-3). The northeastern portion of the Phase 2 area where freshwater from Carmel Creek enters the Project site was specifically excluded because this area does not fit into any specific CRAM typology. It has standing water with an understory of cattails and an overstory of willow trees (*Salix* spp.), and no discernable channel.

The 2016 CRAM assessment in the Phase 1 area was conducted by ESA biologist Rosanne Humphrey (CRAM Practitioner for estuarine, riverine, and vernal pool wetlands) and Julie Fontaine on March 30, 2016. The methodology followed the Riverine Wetlands Field Book, Version 6.1 (CWMW 2013a) in the riverine AAs, and the Perennial Estuarine Wetlands Field Book, Version 6.1 (CWMW 2013b) in the estuarine AAs. The following wetland attributes were assessed: Buffer and Landscape Context, Hydrology, Physical Structure, and Biotic Structure. Each attribute score was based on the values of individual metrics. A rating of A, B, C or D was given for each metric based on narrative descriptions in the Field Books, and then converted to a numeric value (A=12, B=9, C=6, and D=3). These numeric values were used to calculate attribute scores and overall CRAM scores.

In 2021, Dudek updated the CRAM assessment for the Phase 1 area. Following background analysis, site visits were conducted on December 2, 2021, December 8, 2021, and December 22, 2021, by Dudek biologists Charles Adams, Erin McKinney, and Lindsy Mobley. The field portion of the CRAM assessments consisted of finding and confirming (or adjusting) the boundaries of the AAs, and scoring the AAs based on the condition metrics and stressor checklist. All relevant CRAM datasheets were completed according to the Riverine and Perennial Estuarine CRAM User's Manuals (CWMW 2013a, 2013b).

Four AAs were selected for the riverine area and four AAs were selected for the estuarine areas. The grading and construction areas were not known at the time of the selection because the final design plan for the Project had not yet been finalized. Additionally, riverine CRAM is required to be conducted along existing rivers, streams, or creeks to complete the required hydrology assessment. For these reasons, AA-1, and AA-2 were chosen along the existing Los Peñasquitos Creek. It is a wider area of the creek, and there is a trash and sediment impediment at the end of AA-1 and the beginning of AA-2. These locations will allow future surveys to capture changes over time to the sediment and trash removal, and the effects the removal has to the creek in this area. AA-3 and AA-4 were randomly selected to capture creek conditions downstream. The estuarine AAs were randomly selected, with the exception of AA-6, which was placed within the berm that is anticipated to be removed from the site. Future surveys will allow all of the AAs within the estuarine area to capture the restoration effort over time and allow for comparison of those areas to the pre-restoration conditions. Table 2-1 provides the survey type, date, and survey personnel for the CRAM surveys conducted in 2016 and 2021.

2.6.6 Focused Wildlife Species Surveys – 2016 and 2017

Area Specific Management Directives (ASMDs), as listed in Appendix A of the City's MSCP, are required for all applicable special-status species with a moderate or greater potential to occur onsite, including federal- and state-listed species, as well as species that are covered under the MSCP (City of San Diego 1997a). These species include western pond turtle (*Emys marmorata),* orange-throated whiptail (*Aspidoscelis hyperythra*) Cooper's hawk (*Accipiter cooperii*), southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*), northern harrier (*Circus hudsonius*), reddish egret (*Egretta rufescens*), white-tailed kite (*Elanus leucurus*), American peregrine falcon (*Falco peregrinus anatum*), Belding's savannah sparrow (*Passerculus sandwichensis beldingi*), coastal California gnatcatcher (*Polioptila californica californica*), light-footed Ridgway's rail (*Rallus obsoletus levipes*), least Bell's vireo (*Vireo bellii pusillus*), southwestern willow flycatcher (*Empidonax trailli extimus*), elegant tern (*Thalasseus elegans*), California brown pelican (*Pelecanus occidentalis californicus*), white-faced ibis (*Plegadis chihi*), saltmarsh skipper (*Panoquina errans*), mountain lion (*Felis concolor*) and southern mule deer (*Odocoileus hemionus fuliginatus*). Focused protocol surveys were completed in spring/summer 2016 for light-footed Ridgway's rail (Phase 1 only), Belding's savannah sparrow (Phase 1 only), coastal California gnatcatcher (Phase 1 and Phase 2), least Bell's vireo and southwestern willow flycatcher (Phase 1 and Phase 2). Observations of other special-status wildlife species have been recorded and were continually recorded throughout the duration of focused protocol surveys. Specific survey methodologies are provided further in this section. Table 2-1 provides the survey type, date, and survey personnel for the focused wildlife surveys conducted in 2016 and 2017.

Light-Footed Ridgway's Rail Surveys – Spring 2016

All southern coastal salt marsh and coastal and valley freshwater marsh habitat within the Phase 1 Project footprint was surveyed for light-footed Ridgway's rail. The following survey protocol was used to determine if an area was occupied by the light-footed Ridgway's rail (Zembal et al. 2009).

Because of the secretive nature, endangered status, and low detectability of the light-footed Ridgway's rail, six surveys were conducted in all appropriate emergent marsh habitats. The surveys were conducted by a biologist that has a USFWS Section 10(a) 1(a) permit (permit) and a California Department of Fish and Game Memorandum of Understanding (MOU). Individuals with this permit and MOU have at least 40 hours of supervised in-the-field experience in occupied light-footed Ridgway's rail habitat and in the presence of rails and have a well-documented knowledge of the most common light-footed Ridgway's rail vocalizations.

At least one survey was conducted at dusk and one at dawn. The remaining surveys were conducted at either dusk or dawn. Dawn surveys began at or just before sunrise and proceeded for no more than three hours after sunrise. Dusk surveys began two hours before sunset and continued until dark. Surveys were conducted with a minimum of seven days between surveys. No more than 50 acres of emergent marsh habitat were surveyed by one biologist during each dawn or dusk survey. Surveys were conducted from the edge of potential habitat, and the surveyor stayed out of the habitat as much as possible to avoid disturbing light-footed Ridgway's rails and other nesting species.

Surveys were conducted between February 15 and May 20, 2016, in accordance with the environmental parameters described below. Surveys conducted outside this time frame with negative results may not be accepted. Surveys were conducted on mornings and evenings with temperatures greater than 50 degrees Fahrenheit (10 degrees Celsius). Active calling appears to be triggered by the first warm spell in the spring. Cold and rainy conditions were avoided. Surveys were not conducted when wind speed exceeded 15 miles per hour or when there was heavy fog.

The surveys were conducted by stopping at stations approximately 300 feet (100 meters) apart along the perimeter of the Survey Area and listening for vocalizing light-footed Ridgway's rails for five minutes. If rails were not detected passively, a call-prompt or digital vocalization ("duetting") of the light-footed Ridgway's rail was played with a digital player and amplified speakers for a duration of 20 seconds or for the complete length of a light-footed Ridgway's rail song. A response was listened for a period of one minute. If there was no response, this procedure was repeated two more times (for a total of three) before proceeding to the next survey station. If a light-footed Ridgway's rail call was detected, call prompting was immediately stopped, and the surveyor moved at least 600 feet (200 meters) to the next station.

Belding's Savannah Sparrow Surveys – Spring 2016

Surveys for Belding's savannah sparrow, which inhabit similar marsh habitat to light-footed Ridgway's rail, were completed concurrently with light-footed Ridgway's rail surveys in the Phase 1 area and followed the protocol listed in Section 2.6.7.

Least Bell's Vireo Surveys – Spring and Summer 2016

Least Bell's vireo protocol surveys were completed in suitable habitat within the Phase 1 and 2. Suitable least Bell's vireo habitat consists of southern arroyo willow riparian forest, southern willow scrub, mule fat scrub,

southern riparian woodland and variations of these types; these vegetation communities within the BSA totaled approximately 94 acres within the Phase 1 and 35.39 acres in the Phase 2.

Eight surveys for the endangered least Bell's vireo were conducted 10 days apart between April 10 and July 31, in accordance with the most current 2001 USFWS survey guidelines (USFWS 2001). Surveys were conducted between 6:00 AM and 11:00 AM, though several surveys were extended for this Project when avian activity remained high and weather conditions remained favorable. Surveys were conducted without using recorded vocalization playbacks, with the biologist actively looking and listening for least Bell's vireo. The surveying biologist was familiar with the songs, calls, and scolds of adult and juvenile least Bell's vireo, as well as plumage characteristics in relation to other vireo species. The surveys were done by walking slowly through and/or adjacent to least Bell's vireo-suitable habitats, looking and listening for least Bell's vireo presence throughout the survey duration, using binoculars and/or the naked eye, as appropriate. The biologist listened for any and all least Bell's vireo calls, as well as all other bird species. All least Bell's vireo-relevant data and wildlife species were recorded in the field notes of the biologist. If and when least Bell's vireo were detected, detailed notation was collected that included the number of individuals, specific locations using GPS coordinates and/or territory mapping, sex, age, pairing status, nesting status, presence/absence of leg bands and if present, color combinations, the presence of other sensitive bird species, and the presence of the brown-headed cowbird (*Molothrus ater*).

Survey findings were summarized in a least Bell's vireo summary letter 45-day report, due within 45 days of completion of the surveys, per USFWS permit requirements (ESA, 2016b). The report provided a description of the survey area, including identification of any critical habitat designations, survey methodology, and survey results. The report also included maps depicting locations of survey areas, designated critical habitat (if any), brown-headed cowbird locations, listed bird observations, and observations of other special-status species detected.

Southwestern Willow Flycatcher Surveys – Spring and Summer 2016

Southwestern willow flycatcher protocol surveys were completed throughout suitable habitat within the BSA. Suitable southwestern willow flycatcher habitat within the BSA consisted of the same acreage as least Bell's vireo.

Southwestern willow flycatcher survey methods followed the latest accepted protocols of the United States Geological Service (USGS) (Sogge, Ahlers and Sferra, 2010). The methodology stipulates that for project-related surveys, a minimum of one survey must occur within survey period 1 (May 15-31), a minimum of two surveys must occur within survey period 2 (June 1-24) and a minimum of two surveys must occur within survey period 3 (June 25-July 17), and all surveys must be at least five days apart. Five southwestern willow flycatcher surveys were conducted accordingly in the three survey periods. The first survey took place between May 15 and June 1. Two surveys took place between June 1 and June 24. The final two surveys took place between June 24 and July 17. The southwestern willow flycatcher surveys occurred between 5:00 AM and 10:00 AM during favorable weather conditions. Kris Alberts, A USFWS-permitted biologist authorized to survey for southwestern willow flycatcher, conducted the surveys. The surveys were done by walking slowly through and adjacent to southwestern willow flycatcher-suitable habitats while playing back recorded "fitz-bew" calls on an Apple iPhone 6S at full volume. The surveying biologist looked and listened for willow flycatcher and/or southwestern willow flycatcher presence throughout the survey durations, using binoculars and/or the naked eye as appropriate. The biologist listened for any and all flycatcher calls, as well as all other bird species. All flycatcher-relevant data and wildlife species were recorded in the field notes of the biologist for inclusion in the 45-day report (ESA, 2016b).

Survey findings were summarized in a southwestern willow flycatcher summary letter 45-day report, due within 45 days of completion of surveys, per USFWS permit requirements (ESA, 2016b). The report provided a description of the Survey Area, including identification of any critical habitat designations, survey methodology, and survey results. The report also included maps depicting locations of survey areas, designated critical habitat (if any), brown-headed cowbird locations, listed bird observations, and observations of other special-status species detected.

Coastal California Gnatcatcher Surveys – Spring 2016

Coastal California gnatcatcher surveys were conducted in accordance with the most current Coastal California Gnatcatcher Presence/Absence Survey Guidelines issued by the USFWS in February 1997 (USFWS 1997). Three surveys were conducted, at least one week apart, between February 15 and August 30. An ESA biologist with a USFWS 10(a) Threatened and Endangered Species Permit authorized for coastal California gnatcatcher conducted surveys in suitable coastal California gnatcatcher habitat within the BSA. Appropriate habitat within the BSA consisted of approximately 48 acres of Diegan coastal sage scrub habitat in the Phase 1 and 10 acres in the Phase 2, for a total of 58 acres.

Survey findings were summarized in a summary letter 45-day report, due within 45 days of completion of surveys, per USFWS permit requirements (ESA, 2016c). The report provided a description of the survey area, including identification of any critical habitat designations, survey methodology, and survey results. The report also included maps depicting locations of survey areas, designated critical habitat (if any), listed bird observations, and observations of other special-status species detected.

Light-Footed Ridgway's Rail, Least Bell's Vireo and Coastal California Gnatcatcher Surveys – Spring 2016 through Winter 2017

In 2016 and 2017, pre-construction and weekly nesting surveys were conducted by biologists Christina Schaefer and John Lovio for the Los Peñasquitos Lagoon Bridge Replacement project, which included a portion of the Project site along the railway (Schaefer, 2016 and Schaefer, 2017). The surveys were conducted in accordance with the Los Peñasquitos Lagoon Bridge Replacement project's regulatory permits [Informal Section 7 Consultation for Bridge 246.1, 246.9, and 247.1 CM-6 (FWS-SDG-08B0416-10I0211) and Bridge 247.7 CM-2 (FWS-SDG-12B0106- 12I0168)]. The purpose of the surveys was to determine the presence of federally listed species prior to restart of construction, and, if detected, observe the birds' behavior and identify potential nest locations. Survey target species included the federally-threatened California gnatcatcher (*Polioptila californica californica*), federally-endangered light-footed ridgway's rail, and federally-endangered least Bell's vireo (*Vireo bellii pusillus*), In addition, bridges and trees and shrubs around bridges were inspected for any passerine or raptor nests pursuant to the Federal MBTA. Summer surveys occurred on July 14, 18, 20, 22 and 25, 2016, and winter surveys occurred on February 8, 10, 12, 13 and 14, 2017. Weekly nesting surveys occurred from February 2016 through August 2017, during and just before the breeding seasons of the target species. Details regarding these surveys are not readily available and therefore were not included in Table 2-1.

Pedestrian surveys were conducted by observing from all bridges and walking meandering transects through the 500-foot buffer surrounding each bridge. Access to all bridges and their buffers was facilitated from the railroad right-of-way, surrounding roadways, State Beach parking lot, and Flintkote Road. The survey protocol included stopping and listening for bird calls and observing with binoculars. Each bridge and buffer were

surveyed for a minimum of 30 minutes, and visually scanned on the way in and out along the railway alignment. No taped calls were used to elicit response.

2.6.7 Light-Footed Ridgway's Rail and Belding's Savannah Sparrow Surveys – Spring 2019

In 2019, surveys for Belding's savannah sparrow and light-footed Ridgway's rail were conducted by biologists John Konecny, Christina Schaefer, and Bonnie Peterson in suitable habitat within a larger study area that included the Project site. Focused (including diurnal status), territory count and observed surveys occurred on January 21, February 25, March 15, April 4, April 9, April 12, and April 19, 2019. Suitable habitat included all coastal saltmarsh and brackish marsh habitat and freshwater marsh habitat dominated by either cattails (*Typha latifolia*) or California bulrush (*Schoenoplectus californicus*). The latter habitats were included because light-footed Ridgway's rails had historically been observed in these habitats in the Los Peñasquitos Lagoon Preserve due to the absence of cordgrass (*Spartina foliosa*). Suitable habitat was determined from vegetation mapping provided by CSP, a reconnaissance site visit conducted by Christina Schaefer on January 21, 2019, and site-specific knowledge of the study area to determine survey approach. Site-specific knowledge of the study area was obtained through (1) avian surveys (including light-footed Ridgway's rail) within a 500-foot corridor on either side of the railway alignment conducted by Christina Schaefer from 2015 through 2018; and (2) light-footed Ridgway's rail and Belding's savannah sparrow surveys for the annual state-wide census performed by Dick Zembal. Mr. Konecny accompanied Dick Zembal during the state-wide Belding's savannah sparrow and light-footed Ridgway's rail census that included the Lagoon. In addition, mapped results from state-wide surveys were used to inform the survey approach. The survey routes were selected to maximize detections of birds where birds can be heard over a wide radius.

In most years that experience inlet closure, and particularly wet years such as the one in 2019, the Lagoon fills with runoff along with dry weather inputs of freshwater that cause much of the marsh to remain inundated with brackish waters until late spring. Under these conditions, light-footed Ridgway's rails tend to not call and are, therefore, difficult to detect until the marsh drains later in the season. Due to an unseasonably cold winter in 2019, surveys started upon receiving reports of beginning detectability (mating call) of light-footed Ridgway's rail in other lagoons. Call surveys for light-footed Ridgway's rail were conducted by USFWS-permitted biologists John Konecny, and Bonnie Peterson; territory count and observation surveys were conducted by John Konecny, Bonnie Peterson, and Christina Schaefer. Surveys began in the early morning from just before sunrise (to capture light-footed Ridgway's rail calls) and lasted approximately four hours (to capture territorial Belding's savannah sparrow). If overcast or other conditions led to prolonged morning activity, the surveys occasionally continued into the later morning hours.

Surveys were conducted during appropriate weather conditions and not when wind, rain, fog, and/or other conditions unacceptably impaired the biologist's ability for detection. In addition, tide charts were consulted to assist with the planning of optimal survey conditions, including accessibility of the study area and to ascertain optimal habitat conditions for light-footed Ridgway's rail and Belding's savannah sparrow. Most surveys consisted of pedestrian surveys with the exception of the survey conducted on April 4, 2019. This survey was conducted by Christina Schaefer and Bonnie Peterson by kayaking the tidal channels and using binoculars for observation or beaching the kayak and continuing on foot. Kayak-aided surveys were helpful, as light-footed Ridgway's rails are not normally spooked by a carefully approaching kayak. Foraging light-footed Ridgway's rail are, therefore, more detectable via kayak than by a pedestrian survey, specifically if call prompts are not used.

Study methods included traversing the study area on foot across suitable habitat, pausing to listen for bird calls, and observing bird activity using binoculars (Ralph et al 1993). The surveys were conducted by walking transects and stopping at stations approximately 100 feet (30 meters) apart, observing the surrounding habitat using binoculars, and listening for vocalizing Belding's savannah sparrow and light-footed Ridgway's rails. If light-footed Ridgway's rails were not detected passively, a digital call-prompt of the light-footed Ridgway's rail "dueting" was played with a recording at 30-second intervals. Surveys began with an initial five-minute passive listening period, followed by less than one-minute of clapper rail calls, and completed with a four-minute passive listening period (approximate). Tape playbacks were broadcasted in all directions over the marsh at each station. A response was listened for at least four minutes at each survey point before proceeding to the next survey station. Observations for both species included signs and behaviors indicative of current nesting, including singing, pair interactions, carrying of nest material, carrying of food for young, and actual nests.

Belding's savannah sparrow territories were counted by the recordation of all observations. Territoriality was established through the observation of singing, scolding, paired perching, nest-building, feeding young, and aerials chases. Most Belding's savannah sparrows in the study area were singing males, and therefore, territories were identified accordingly, which assisted in the avoidance of overestimating mates of singing individuals. Many of the males were likely paired, thus the Belding's savannah sparrow population was potentially underestimated during the surveys.

Table 2-1 provides the survey type, date, and survey personnel for the light-footed Ridgway's rail and Belding's savannah sparrow surveys conducted in 2019.

2.6.8 Updated Biological Surveys 2020 - 2023

Blackhawk biologists completed several verifications and updated biological surveys in the Project site in 2020 and 2021, including vegetation mapping, focused rare plant surveys and a formal jurisdictional delineation. During the surveys, the vegetation communities map previously prepared by ESA was updated to reflect current boundaries of the mapped polygons (recognizing that intergrades between marshland types were frequent). In addition, a plant species inventory was compiled and special-status plant species locations were mapped during focused rare plant surveys. Vegetation polygons were digitized using the ESRI ArcGIS Collector application through a synthesis of onsite field verification and desktop analyses using high-resolution aerial imagery shot specifically for the Project. Vegetation community classifications used in this BTR follow Holland (1986) and Oberbauer et al. (2008) and are consistent with the classification system used in the MSCP and required by the Biology Guidelines. Plant taxonomy follows the Jepson Manual: Vascular Plants of California and the Checklist of Vascular Plants of San Diego County (Baldwin et al. 2012; Rebman and Simpson 2014). Wildlife taxonomy follows the Complete List of Amphibian, Reptile, Bird and Mammal Species in California (CDFW 2014).

Table 2-1 provides survey type, date, and survey personnel for surveys conducted in 2020, 2021 and 2022.

Focused Rare Plant Surveys – Spring and Summer 2020

A literature review for known occurrences of special-status plant species was conducted by Environmental Science Associates (ESA) in 2016 in order to determine if special-status plant species or related resources had been reported in the vicinity of the BSA; ESA later conducted focused rare plant surveys in 2016 in the BSA as it was defined at that time. Blackhawk utilized literature review results from 2017 for a separate but adjacent

project in TPSMR (ECORP and Blackhawk 2019). These reviews were performed via searches of the CNDDB, USFWS-designated critical habitat, USFWS species occurrence data, County of San Diego SanBIOS database, and CNPS Online Inventory of Rare and Endangered Plants of California (ESA 2016, ECORP and Blackhawk 2019). Following the literature review, a preliminary PFO was assigned to each species as cross-referenced by existing conditions in the BSA and hypothesized suitability. Based on the results of the literature review and analysis of the previous focused rare plant survey results from 2016, Blackhawk performed focused rare plant surveys within the BSA. It is important to note that the nature of this survey included cataloging all plant species observed within the BSA, including those presumed to be absent in the preliminary literature review and possibly other special-status species that may not yet be known within the vicinity of the BSA. The surveys were conducted by a team of six Blackhawk biologists (Kris Alberts, Seth Reimers, Ryan Quilley, Lorena Bernal, Katie Quint and Ian Maunsell) walking in slightly meandering transects approximately 20 to 60 feet apart from one another along the entire 243.16-acre BSA in order to achieve 100% visual coverage. In some instances, where proximal development did not preclude the presence of special-status plant species, the survey area was extended approximately 30 feet beyond the BSA boundary to document special-status plant locations adjacent to the BSA boundary. In general, the distance between transects increased or decreased as necessary in order to ensure full coverage and varied with factors such as habitat type, topography, vegetative density and height, access restrictions, and target species morphological traits. Since some of the target species could be identified from non-floral characteristics outside of bloom periods, and many other special-status plant species known in the region have generally overlapping bloom periods, one survey pass along the entire BSA, followed by a second pass through coastal sage scrub, marshland, and disturbed habitats only, was sufficient to capture the presence/absence of any potentially occurring special-status plant species for the Project. In addition, follow-up incidental observations were made during other surveys (e.g., jurisdictional delineation, vegetation mapping) for this Project through April 22, 2021.

On each focused rare plant survey pass, each surveyor recorded every plant species encountered along their survey route in his or her field notes. In order to make specific or sub-specific determinations, digital photographs and/or small samples were collected for some species that required further analysis. Digital photographs were collected for each special-status species found, as well as its habitat on the Project site. Blackhawk utilized Principal Botanist Ryan Meszaros for final quality assurance/quality control (QA/QC) of plant specimens. The biologists worked collaboratively as a team to ensure that all observed plants were documented correctly for proper presentation in the findings of this BTR.

Botanical taxonomy follows The Jepson Manual: Vascular Plants of California, second edition and the Jepson eFlora except where local experts Rebman and Simpson used alternate nomenclature in accordance with the Checklist of Vascular Plants of San Diego County, 5th edition (in press). Invasive plants were identified utilizing California Invasive Plant Council's (Cal-IPC) Inventory Database (http://www.cal-ipc.org/paf/). The survey results were presented in the Focused Rare Plant Survey Report, Los Penasquitos Lagoon Restoration Project – Phase 1, San Diego, San Diego County, CA (Blackhawk Environmental, 2020a) (Appendix F).

Jurisdictional Delineation Surveys – Summer 2020

The previous delineation conducted by ESA yielded jurisdictional features over most of the BSA as it was defined at that time. The 2020 delineation was conducted to verify and update potentially jurisdictional areas throughout the 243.16-acre BSA. The 2020 delineation followed the guidelines set forth by USACE (1987, 2008) and was performed to gather field data at potentially jurisdictional Waters of the U.S. and Waters of the State within the

BSA as well as to verify the previous findings. Potential wetlands were delineated within the BSA based on commonality among vegetation community characteristics and three-parameter testing methodology.

Prior to conducting the field delineation, the following sources were consulted to identify land use history and provide additional context to potentially atypical and problematic jurisdictional wetlands within the BSA, including:

- USGS Del Mar quadrangle topographic map (USGS 2011)
- Current and historical aerial photographs (Google 2020)
- NWI (USFWS 2020)
- Draft BTR, Sorrento/Los Penasquitos Waterways Restoration and Improvement Program, City of San Diego, San Diego County, California (ESA, 2016a)

Potential wetland locations were examined to determine the presence of any of the three wetland parameters or drainage channels. Soil type and classification data used in the delineation were provided by the Natural Resource Conservation Service's (NRCS) web soil survey (accessed August 2020).

Potential waters and wetland locations observed within the BSA were evaluated using the methodology set forth in the USACE Wetland Delineation Manual (USACE 1987) and the Arid West Supplement (USACE 2008). The three parameters used to determine the presence of wetland areas include presence of 1) a dominance of hydrophytic vegetation, 2) wetland hydrology and 3) hydric soils. Criteria for determining presence of wetland hydrology indicators may include evidence of inundation, saturation, water marks, drainage patterns, soil cracks, drift lines, sediment deposits, presence of aquatic invertebrates, and other variables. Vegetation was analyzed using dominant species wetland indicator status. Soil samples were collected and described according to the methodology provided in the Arid West Supplement. Soil chroma and values were determined by utilizing a standard Munsell soil color chart (GretagMacbeth 2000).

Suspected non-wetland jurisdictional areas were evaluated for the presence of definable channels, OHWMs, and connectivity to a TNW or RPW. Identification of the OHWM followed the Corps Regulatory Guidance Letter No. 05-05, Ordinary High Water Mark Identification (USACE 2005).

A total of seven wetland sampling soil pits were dug in 2020 to complement the 13 data points that ESA collected in 2016. Complete USACE Wetland Determination Data Forms are provided for each 2020 sample point (Blackhawk Environmental 2020b). Where indicators of hydric soils were observed at sample points, "test pits" were excavated to serve as additional soil samples to determine the extent of hydric soil indicators where wetland hydrology and vegetation remained constant surrounding the initial sample point location. Excavation of test pits were discontinued once one or more of the three wetland parameters were no longer present along sampling zones.

The 2020 delineation update did not reduce or eliminate any areas previously deemed likely to fall under the jurisdiction of any regulatory agencies. Instead, the update was intended to capture either 1) the expansion of potentially jurisdictional areas as a result of "new normal" conditions (e.g., the formation of three parameter wetlands), 2) the conversion of jurisdictional areas to other types of jurisdictional features within the same agency purview (e.g. non-wetland waters of the U.S. now meeting criteria as wetland areas) and/or 3) the addition of regulatory agencies which may assert jurisdiction over a given feature (e.g., previously isolated RWQCB wetland features now observed to have adjacency to Waters of the U.S.). No previously delineated features were eliminated as part of the update. Rather, additional acreage of likely jurisdictional waters were mapped throughout the lowland floodplain of the BSA, largely as a result of the test pit analyses conducted over mapped marshlands (Blackhawk Environmental, 2020b).

Jurisdictional Delineation Surveys – Winter 2021/2022

Rocks Biological Consulting (RBC) conducted a formal aquatic resources delineation for 243-acre BSA, to identify areas that may be considered jurisdictional under the U.S. Army Corps of Engineers (Corps) pursuant to Section 404 of the Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act (RHA); the Regional Water Quality Control Board (RWQCB) pursuant to Section 401 of the CWA and the Porter-Cologne Water Quality Control Act; and the California Department of Fish and Wildlife (CDFW) pursuant to Section 1602 of the California Fish and Game Code. Prior to the on-site delineation, field maps were created using a Geographic Information System (GIS) and a color aerial photograph at a 1:200 scale. RBC staff also reviewed USGS National Hydrography Dataset (NHD) and topography data, U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) data, and Natural Resources Conservation Service (NRCS) soils data to further determine the potential locations of aquatic resources within the review area. RBC also utilized Google Earth to assess current and historic presence or absence of flows and/or ponding in the review area (Google Earth Pro 2021). RBC also reviewed the *Draft Biological Technical Report, Sorrento/Los Peñasquitos Waterways Restoration and Improvement Program, City of San Diego, San Diego County, California*, prepared by Environmental Science Associates (ESA) and dated June 21, 2016 (ESA 2016) and the *Jurisdictional Delineation Report, Los Penasquitos Lagoon Restoration Project – Phase 1, San Diego, San Diego County, CA*, prepared by Blackhawk Environmental and dated September 21, 2020 (Blackhawk Environmental 2020). RBC regulatory specialists/biologists conducted aquatic resources delineation field visits on January 11, 12, and 20, 2022.
Areas with depressions, drainage patterns, and/or wetland vegetation within the review area were evaluated, with focus on the presence of defined channels and/or wetland vegetation, soils, and hydrology. While in the field, potential aquatic resources were recorded using a hand-held Global Positioning System (GPS) unit with a level of accuracy ranging from 12 to 30 feet. RBC staff refined the data using aerial photographs and topographic maps with one-foot contours to ensure accuracy. More detail information can be found in Appendix G.

Least Bell's Vireo & Southwestern Willow Flycatcher Surveys – Spring and Summer 2022

Both least Bell's vireo and southwestern willow flycatcher surveys followed the protocols as described in Section 2.6.6, Focused Wildlife Species Surveys – 2016 and 2017. However, these surveys were only conducted within the Phase 1 boundary. Due to changes in the project area and updates to the vegetation mapping, suitable habitat within Phase 1 totals approximately 85 acres. The 2022 45-day report is provided in Appendix D.

Light-footed Ridgway's Rail & Belding's Savannah Sparrow Surveys –Spring and Summer 2022

Six presence/absence survey rounds were conducted for light-footed Ridgway's rail and followed both the Standardized North American Marsh Bird Monitoring Protocol (Conway 2011) and Survey Guidelines to Determine Presence/Absence of the Light-footed Clapper Rail in Southern California Recommendations of the Clapper Rail Study Team (Zembal et al. 2009). Six surveys were conducted between March 15 and June 15, 2022, with at least one survey within each survey window March 15–March 31, April 1–April 14, April 15–April 30, May 1–May 14, May 15–May 31, and June 1–June 15 (Table 2-1). Twenty-four stations within suitable habitat were established within the study area. Stations were separated into three groups (1-7: 8-17: and 18-24) and were located no less than 200 meters apart. Stations 1-7 were surveyed from a kayak and Stations 8-24 were surveyed by walking transects. Surveys covered at least one evening and one morning survey period for each survey group. The evening surveys began two hours before sunset and extended 30 minutes after sunset. Morning surveys began at or just before sunrise and proceeded for no more than

three hours after sunrise. At each station, at least five-minutes of passive listening was first conducted to detect spontaneous calls from rails followed by a LFRR broadcast call, then 1 min listening, then broadcast, then 1 min listening (about 11 minutes total at each station). If light-footed Ridgway's rail were found, recorded vocalizations ceased. All light-footed Ridgway's rail detections were recorded in field notebooks and locations were mapped using ArcGIS Field Maps.

Five Belding's savannah sparrow surveys were conducted between March and June 2022. Surveys for Belding's savannah sparrow occurred between dawn and 1030 a.m. Belding's savannah sparrow surveys included passively surveying for birds using binoculars and/or spotting scopes and listening for singing birds. Stations that were designated as light-footed Ridgway's rail listen stations as described above were used as reference points to meander through habitat suitable for Belding's savannah sparrow. The areas around Stations 1-7 were surveyed from a kayak and the areas adjacent to Stations 8-24 were surveyed by walking transects. Belding's savannah sparrow detection was determined by singing, visual sightings of perched birds or aerial chases. All surveys were conducted during favorable weather conditions. All Belding's savannah sparrow detections were recorded in field notebooks and locations were mapped using ArcGIS Field Maps. The 2022 45-day report is provided in Appendix E.

Coastal California Gnatcatcher Surveys – Spring 2023

Coastal California gnatcatcher surveys were conducted in the area of proposed Floodplain Enhancement 3 (adjacent to the corner of Estuary Way and Flintkote Avenue) in accordance with the most current Coastal California Gnatcatcher Presence/Absence Survey Guidelines issued by the USFWS in February 1997 (USFWS 1997). Three surveys were conducted, at least one week apart, between February 15 and August 30. A Dudek biologist with a USFWS 10(a) Threatened and Endangered Species Permit authorized for coastal California gnatcatcher conducted surveys in suitable coastal California gnatcatcher habitat.

Survey findings are summarized in a summary letter 45-day report (Appendix H). The report provides a description and maps of the survey area, including identification of suitable habitat, survey methodology, and survey results.

2.7 Survey Limitations

No known survey limitations existed during the survey efforts.

3.0 Results

This section includes descriptions of the environmental setting, topography and drainage, soil types, hydrologic features, vegetation communities, special-status plant species, and special-status wildlife species of the BSA. Appendix C provides representative photographs.

3.1 Environmental Setting

The Project is located partially within City-owned land, CCC-owned land, and TPSNR, a State-owned public park that features preserved natural vegetation communities, open space, hiking trails, park facilities, and ocean views spread over approximately 2,000 acres on the coastline in and near the Cities of Del Mar, La Jolla and San Diego, California. The majority of the BSA topography trends gently downslope toward the northwest along a tidal plain/floodplain to the Pacific Ocean. Unique biological resources, including numerous Torrey pines, and a host of rare plant and wildlife species, are known to occur in the BSA. Except for small, developed portions associated with paved roads, the railway and the concrete-lined channel, the BSA is composed entirely of natural land consisting of a mosaic of riparian and wetland habitats in the lowlands and Diegan coastal sage scrub, scrub oak chaparral, non-native grasslands, disturbed habitat, and Torrey pine forest in the surrounding uplands west of the tidal plain/flood plain. In addition, dramatically eroded canyons and bluffs are found interspersed among the Torrey pine stands and natural habitats in many localities within TPSNR, offering unique landforms for the enjoyment of the public, as well as for the maintenance of pre-existing topography and biological integrity functions.

TPSNR is located in the MSCP's Biological Core Resource Area 14: Los Peñasquitos Lagoon/Del Mar Mesa/Peñasquitos Canyon. The BSA is within the City's Northern Area MSCP Subplan. The MSCP-covered land is subject to an average habitat conservation in the MHPA of 90 to 95 percent. The MSCP includes TPSNR as an area of very high habitat value. There is no USFWS critical habitat designated or occurring within the Project site.

3.2 Topography and Drainage

The City's definition of "steep slope" is greater than 25 percent slope and an elevation differential of 50 feet. The City's ESL regulations define steep slopes as a sensitive resource. Elevations within the BSA range from 4 feet to 192 feet. ESLs as defined by "steep slope" do occur within the BSA; these areas are located on portions of the western edge of the BSA and consist of approximately 14.1 acres.

3.3 Soil Types

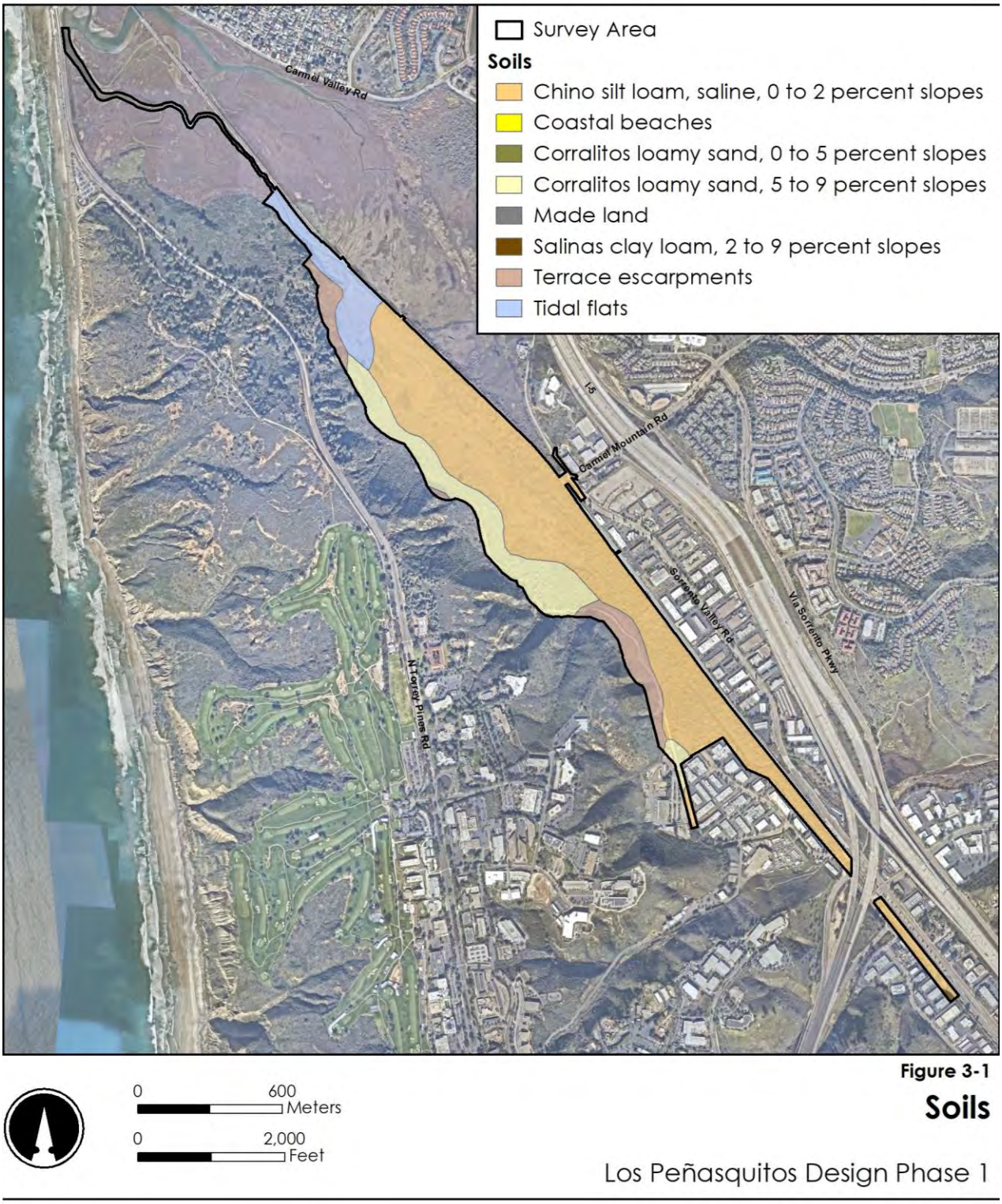
USDA mapped five soil types within the BSA: Chino silt loam (CkA), saline, 0 to 2 percent slopes; Coralitos loamy sand (CsC), 5 to 9 percent slopes; Salinas clay loam (SbC), 2 to 9 percent slopes; Terrace Escarpments (TeF); and Tidal flats (Tf) (see Figure 3-1). The characteristics of the soil types are described below (USDA 1973):

- Chino silt loam (CkA), saline, 0% to 2% slopes: This soil type comprises approximately 80% of the BSA. Chino silt loam consists of fine to medium granular and poorly to somewhat poorly drained structure; often contains annual weeds and grasses (USDA 1973).

- Corralitos loamy sand (CsC), 5% to 9% slopes: This soil type occurs within the western boundary of the BSA. Corralitos loamy sand consists of very well-drained soils derived from acidic sandstone within alluvial fans (USDA 1973).
- Salinas clay loam (SbC), 2% to 9% slopes: This soil type occurs at the southern end of the BSA and is associated with the concrete-lined channel and the riparian habitat at the extreme southern end. Salinas clay loam consists of well-drained alluvial soils derived from mixed sources (USDA 1973).
- Terrace Escarpments (TeF): This soil type occurs within parts of the western boundary of the BSA. Terrace escarpments consist of long, narrow rocky areas with steep faces composed of soft coastal sandstone, hard shale, or fine-grained sandstone (USDA 1973).
- Tidal flats (Tf): Tidal flats occur on the border of a saline body of water with fluctuating water levels. This soil type occurs within the northern boundary of the BSA (USDA 1973).

Hydric soils were found primarily in association with the Chino silt loam, Salinas clay loam, and Tidal flats soil types. Due to development of Flintkote Avenue, the railway, the concrete-lined channel, and other adjacent areas within the BSA, localized land alterations have resulted from grading, cutting, and filling. These activities have likely caused some disturbance to the original soil types that differ slightly from the current soils. It is unknown to what extent the current soil types may be intermixed with imported or altered soils due to development and/or sedimentation due to the hydrological alterations over time, though it is assumed that native soil horizons still predominantly exist within the BSA.

Figure 3-1: Overview of Soil Types within the BSA



3.4 Hydrologic Features

Per the review of on-line data sources, USGS NHD maps one "Swamp Marsh" within the northern portion of the review area and maps the approximate location of Peñasquitos Creek within the central/eastern portion of the review area as "Stream/River" (intermittent) (USGS 2020). USGS NHD also maps five features with a designation of "Stream/River" (ephemeral) within the southern portion of the review area (USGS 2020). USFWS NWI maps one feature with a designation of "Estuarine and Marine Deepwater" that is classified as E1UBL[5] and one feature with a designation of "Estuarine and Marine Wetland" that is classified as E2EM1P[6] in the far northern portion of the review area (Figure 3-2; USFWS 2021). The USFWS NWI also maps eight features as "Freshwater Emergent Wetland" within the northern and central portions of the review area. The USFWS NWI classifies these eight "Freshwater Emergent Wetland" features as PEM1A[7], PEM1C[8], PEM1/SSA[9], and PEM1/SSC[10] (Figure 3-2; USFWS 2021). The USFWS NWI also maps one feature as "Freshwater Emergent Wetland" that is classified as PEM1Cx[11] within the southern portion of the review area. USFWS NWI maps four features within the northern portion of the review area and one feature within the southern portion of the review area with a designation of "Freshwater Pond" that are classified as PUSA[12] (Figure 3-2; USFWS 2021). The USFWS NWI maps twelve features with a designation of "Freshwater Forested/Shrub Wetland" throughout the review area. The USFWS NWI classifies these eleven "Freshwater Forested/Shrub Wetland" features as PSSA[13], PSSC[14], PSSCx[15], and PFO/SSC[16] (Figure 3-2; USFWS 2021). The USFWS NWI maps six features with a designation of "Riverine" throughout the southern portion of the review area. The USFWS NWI classifies these six "Riverine" features as R2UBHx[17], R2EM2Hx[18], R2EM2F[19], R4SBC[20], and R4SBCx[21]. The USFWS NWI maps two features as "Forested/Shrub Riparian" that are classified as Rp1SS[22] within the central portion of the review area (Figure 3-2; USFWS 2021).

Known hydrologic sources for the observed on-site drainages, discussed further below, are direct precipitation and runoff from surrounding roads and development. Based on field observations, features within the review area generally drain southeast to northwest towards the Pacific Ocean. Based on historical studies and hydrodynamic modeling of current conditions, tidal hydrology is restricted to the existing tidal channel in the northernmost portion of the review area. Tidal flows are restricted farther upstream from the narrow portion of the review area between the railroad embankment and bluff slopes ("pinch point") due to persistent freshwater flows and the elevations of the channels and surrounding marsh, which are 4 to 8 feet higher than the tidal channel closer to the lagoon inlet. The majority of the review area is a floodplain that

5 Estuarine (E) subtidal (1) unconsolidated bottom (UB) subtidal (L)
6 Estuarine (E) intertidal (2) emergent (EM) persistent (1) irregularly flooded (P)
7 Palustrine (P) emergent (EM) persistent (1) temporarily flooded (A)
8 Palustrine (P) emergent (EM) persistent (1) seasonally flooded (C)
9 Palustrine (P) emergent (EM) persistent (1) scrub-shrub (SS) temporarily flooded (A)
10 Palustrine (P) emergent (EM) persistent (1) scrub-shrub (SS) seasonally flooded (C)
11 Palustrine (P) emergent (EM) persistent (1) seasonally flooded (C) excavated (x)
12 Palustrine (P) unconsolidated shore (US) temporarily flooded (A)
13 Palustrine (P) scrub-shrub (SS) temporarily flooded (A
14 Palustrine (P) scrub-shrub (SS) seasonally flooded (C)
15 Palustrine (P) scrub-shrub (SS) seasonally flooded (C) excavated (x)
16 Palustrine (P) forested (FO) scrub-shrub (SS) seasonally flooded (C)
17 Riverine (R) lower perennial (2) unconsolidated bottom (UB) permanently flooded (H) excavated (x)
18 Riverine (R) lower perennial (2) emergent (EM) non-persistent (2) permanently flooded (H) excavated (x)
19 Riverine (R) lower perennial (2) emergent (EM) non-persistent (2) semipermanently flooded (F)
20 Riverine (R) intermittent (4) streambed (SB) seasonally flooded (C)
21 Riverine (R) intermittent (4) streambed (SB) seasonally flooded (C) excavated (x)
22 Riparian (Rp) lotic (1) scrub-shrub (SS)

was historically composed of non-tidal salt marsh. Urbanization of the watershed and hydrology alterations in the lagoon have resulted in year-round persistent freshwater flows, greater stormwater flows and retention times, and deposition of sandy sediment, which have degraded the salt marsh habitat and converted upstream portions of Peñasquitos Creek/Lagoon to freshwater wetlands. Specifically within the review area, these flows have originated from the following outfalls: Tripp Court, Carmel Mountain Road, Industrial Court, Carmel Mountain Road "North" Flintkote Avenue, and Dunhill Street (Figure 1-10).

Figure 3-2: NWI Classifications found in the BSA

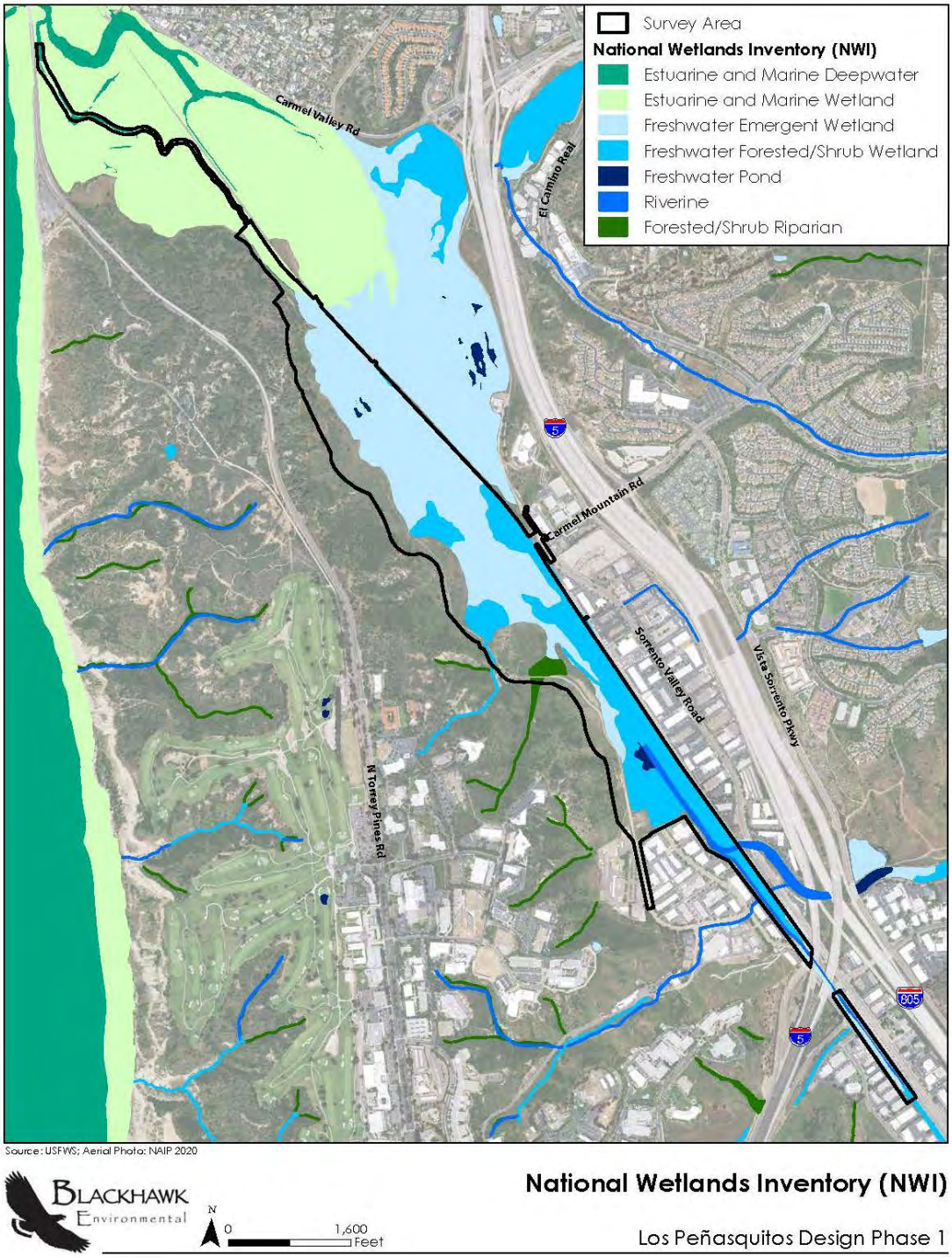


Table 3-1 and Figures 3-3 and 3-4 quantify the area subject to the jurisdiction of the USACE, RWQCB, CDFW, CCC and the City within the Project site. A more detailed description of the plant communities and their dominant species can be found in the Aquatic Resources Delineation Report and associated USACE field data sheets (Rocks 2022; Appendix G).

Table 3-1: Summary of Jurisdictional Areas Within the Project Site – Phase 1

Habitat Types	Jurisdictional Acres	Linear Feet
USACE Wetland Waters of US	2.30	NA
USACE Non-Wetland Waters of US	161.84	19,676
Total USACE Jurisdiction	**164.14**	**19,676**
RWQCB Wetland Waters of State	150.91	6,821
RWQCB Non-Wetland Waters of State	13.22	12,854
Total RWQCB Jurisdiction	**164.14**	**19,676**
CDFW/CCCC/City Unvegetated Streambed	10.74	12,442
CDFW/CCC/City Riparian Habitat	1.31	NA
CDFW/CCC/City Vegetated Streambed	161.35	7,234
Total CDFW/CCC/City Jurisdiction*	**173.41**	**19,676**

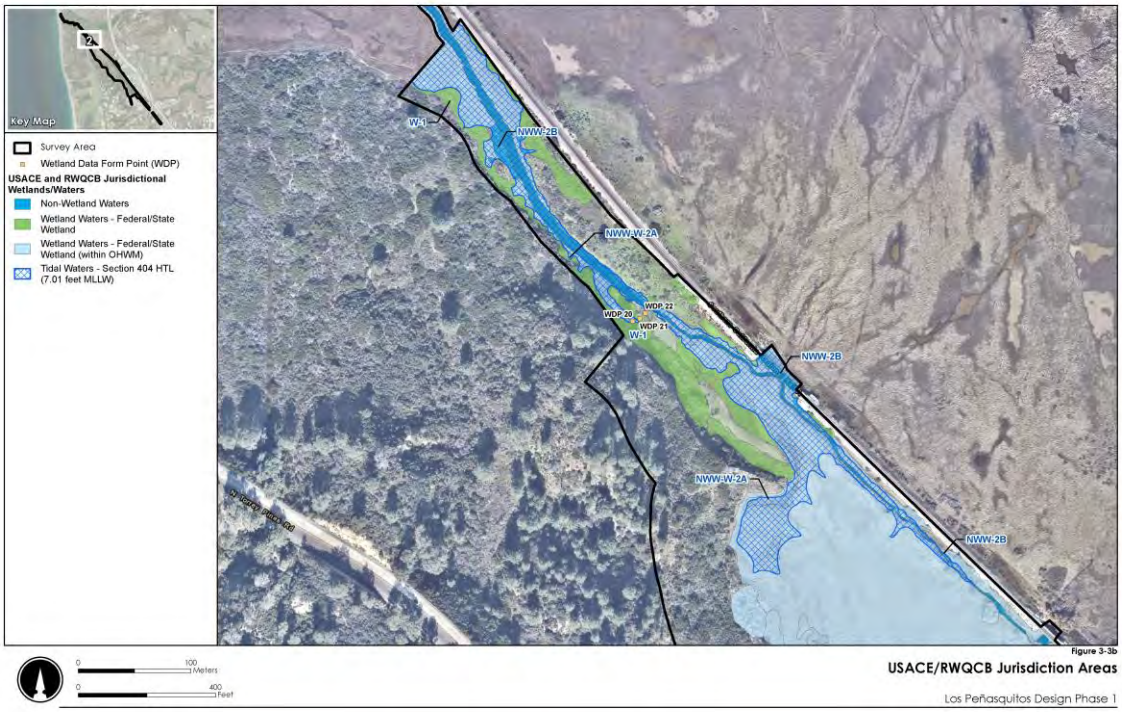
Source: Rocks, 2022

* Includes USACE/RWQCB acreage

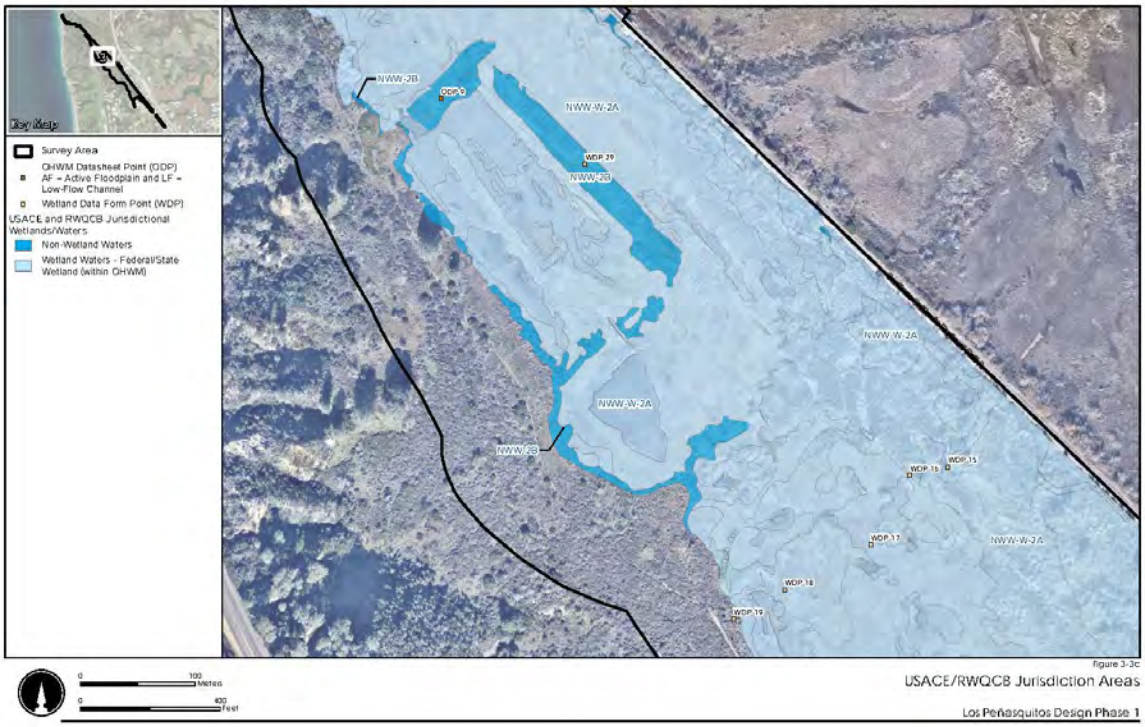
Figure 3-3: USACE and RWQCB Jurisdiction Areas in the BSA

3-3a: Jurisdiction in Area 1

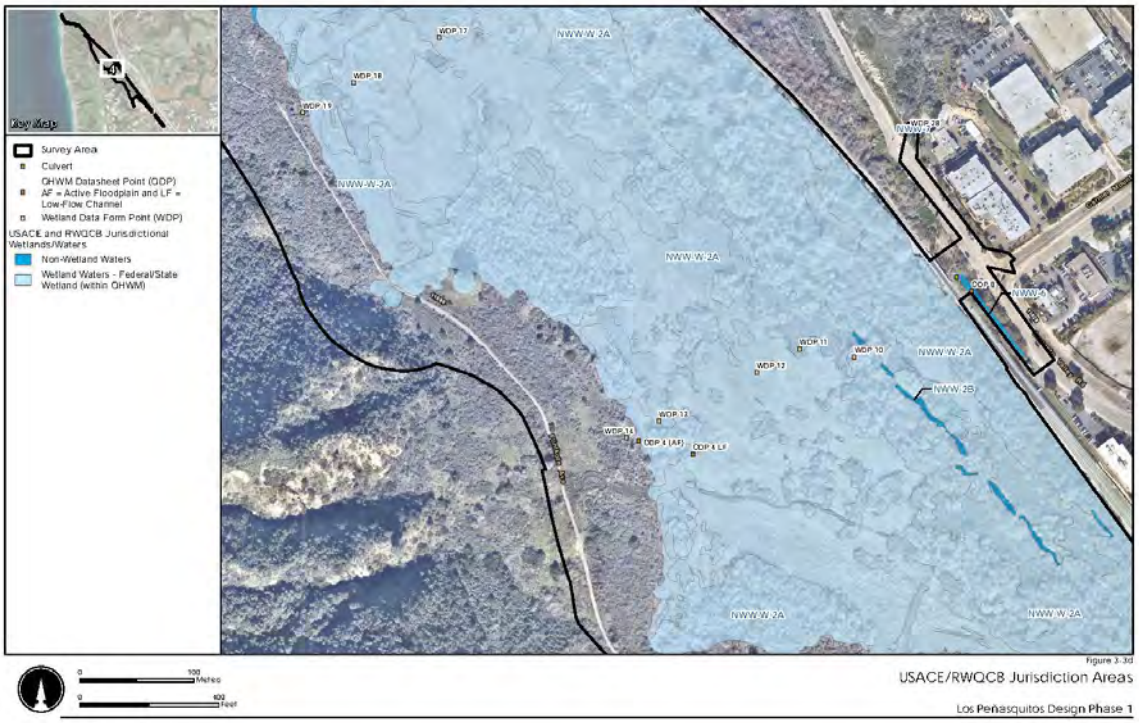
3-3b: Jurisdiction in Area 2



3-3c: Jurisdiction in Area 3



3-3d: Jurisdiction in Area 4



3-3e: Jurisdiction Area 5

3-3f: Jurisdiction Area 6

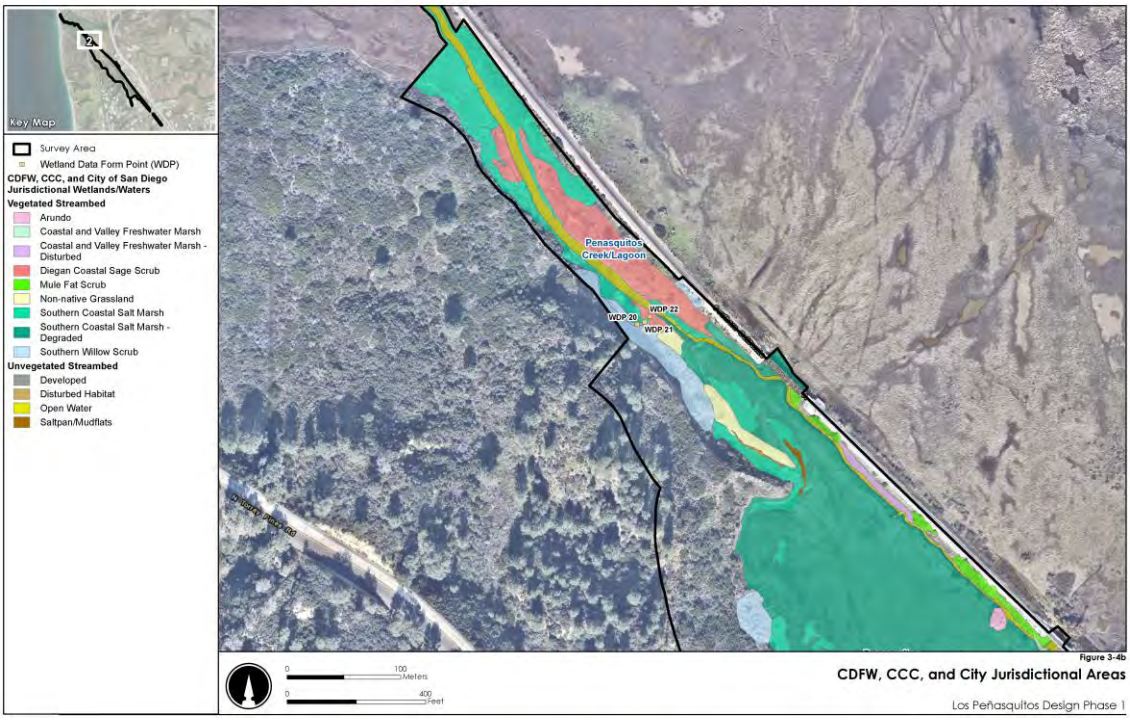
3-3g: Jurisdiction Area 7

3-3h: Jurisdiction Area 8

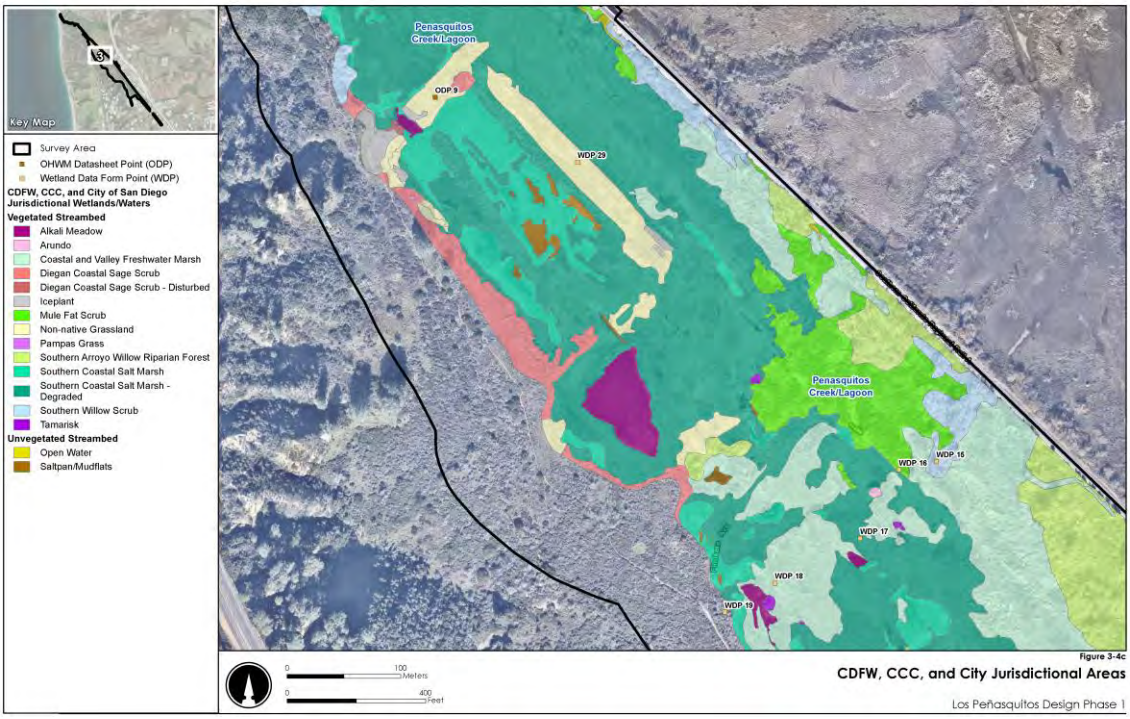
Figure 3-4: CDFW, CCC, and City Jurisdiction Areas in the BSA

3-4a: Jurisdiction Area 1

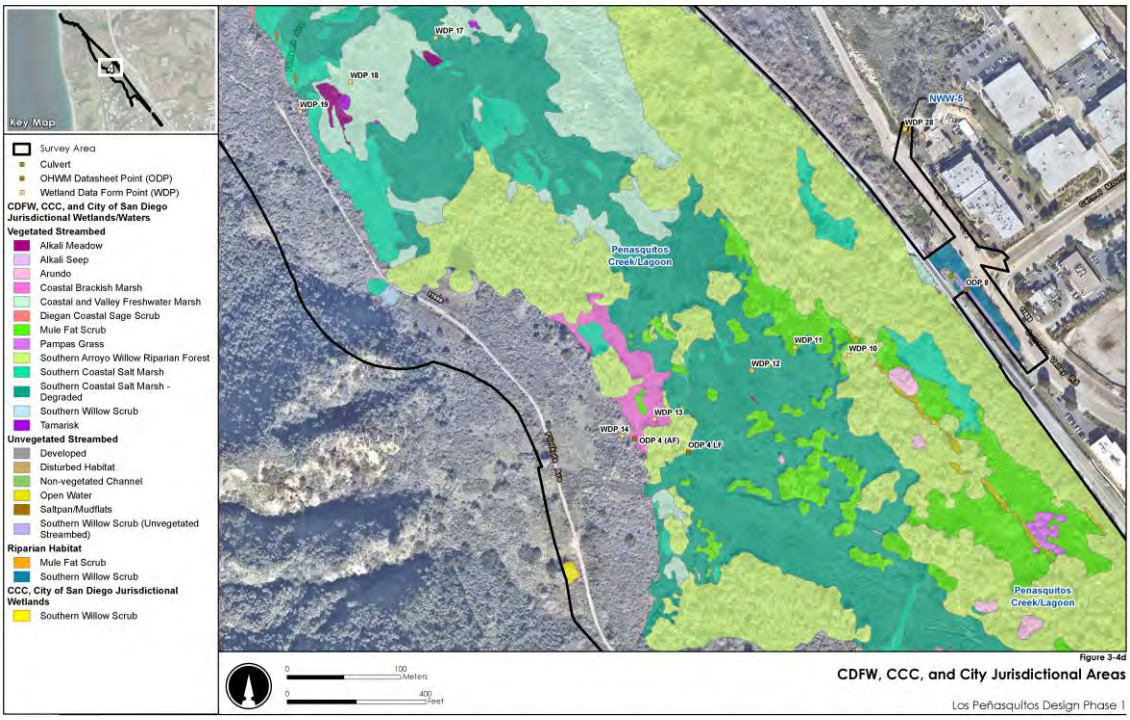
3-4b: Jurisdiction Area 2



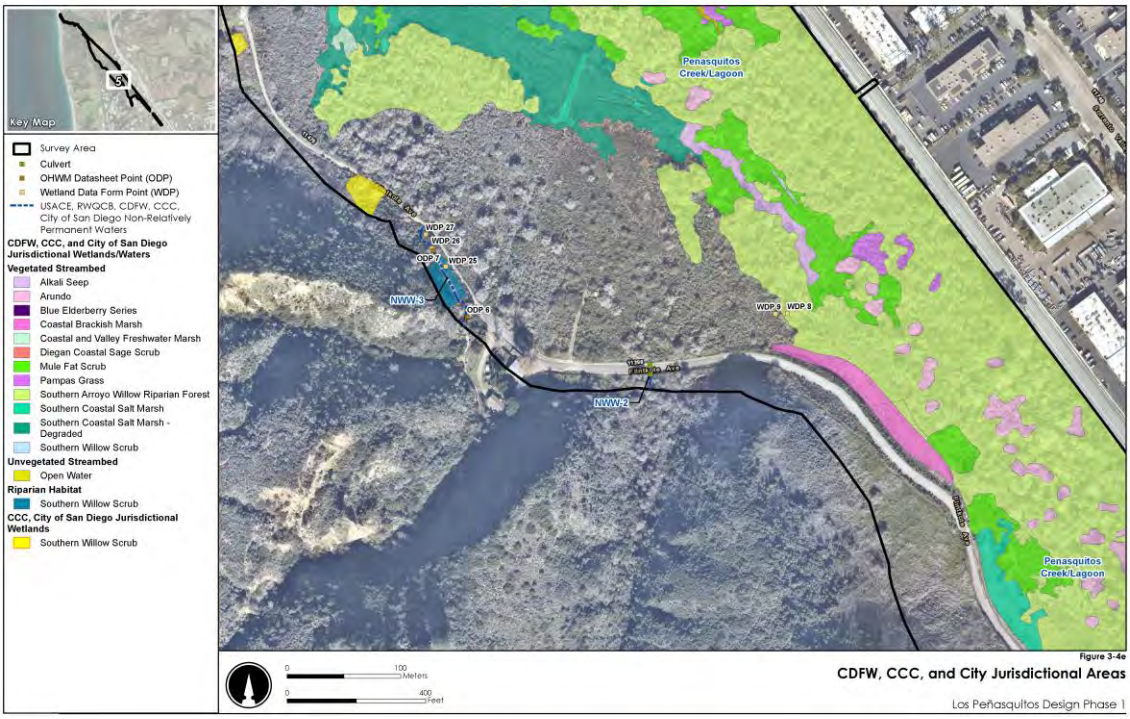
3-4c: Jurisdiction Area 3



3-4d: Jurisdiction Area 4



3-4e: Jurisdiction Area 5



3-4f: Jurisdiction Area 6

3-4g: Jurisdiction Area 7

3-4h: Jurisdiction Area 8

3.4.1 U.S. Army Corps of Engineers Jurisdiction

Approximately 161.84 acres (19,676 linear feet) of potential non-wetland waters of the U.S. occur within the BSA. Approximately 2.30 acres of potential wetland waters of the U.S. occur within the BSA. Approximately 5.72 acres of RHA Section 10 tidal waters of the U.S. and 10.63 acres of CWA Section 404 tidal waters of the U.S. occur within the BSA. RHA Section 10 navigability may extend to the I-5 based on a previous 1986 determination (U.S. Coast Guard 1986).

3.4.2 Regional Water Quality Control Board Jurisdiction

Approximately 13.22 acres (12,854 linear feet) of non-wetland waters of the State and 150.91 acres (6,821 linear feet) of wetland waters of the State occur within the BSA.

3.4.3 California Department of Fish and Wildlife Jurisdiction

Approximately 161.35 acres (7,234 linear feet) of vegetated streambed, 10.74 acres (12,442 linear feet) of unvegetated streambed, and 1.31 acres of associated riparian habitat occur within the BSA.

3.4.4 California Coastal Commission Jurisdiction

Wetlands defined under the Coastal Act (Section 30121 of California Coastal Act as of January 1, 2005) were delineated based upon the USFWS definition (Cowardin et al. 1979) of wetlands. The BSA contains 173.41 acres of jurisdictional wetlands, including riparian, unvegetated channel, and marsh habitat.

3.4.5 City of San Diego Jurisdiction

The BSA contains habitat classified as wetland including unvegetated channel, riparian, and marsh habitats that are subject to City jurisdiction. Approximately 173.41 acres of City wetland/riparian jurisdictional area exist within BSA.

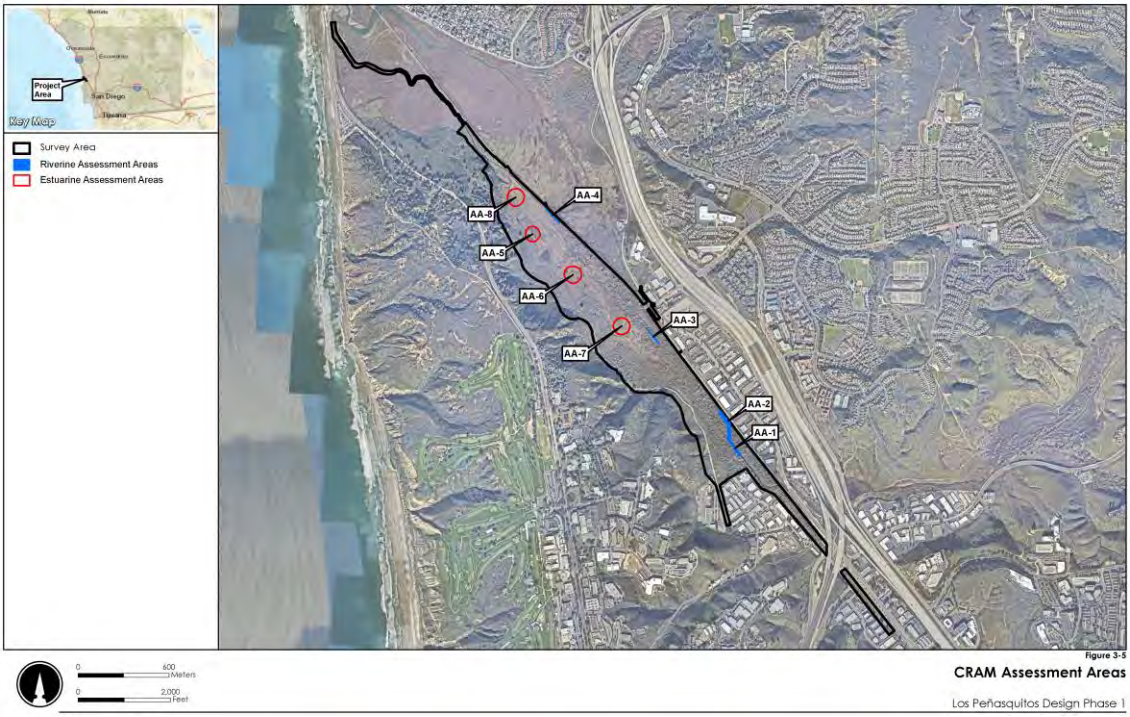
3.4.6 CRAM Results

Table 3-2 summarizes the CRAM results for the eight AAs located within the BSA (see Figure 3-5). The overall CRAM scores ranged from 51 to 67. Individual attribute scores across all AAs ranged from 70-93 for Buffer and Landscape Context, 33–50 for Hydrology, 25–63 for Physical Structure, and 64–75 for Biotic Structure. Results for each individual AA is discussed below.

Table 3-2: Summary of Baseline CRAM Attributes and Metric Scores

Attribute/ Metric	AA-1 Riverine	AA-2 Riverine	AA-3 Riverine	AA-4 Riverine	AA-5 Estuarine	AA-6 Estuarine	AA-7 Estuarine	AA-8 Estuarine
Buffer and Landscape Context	49	49	90	86	60	67	68	78
Hydrology	75	75	92	83	42	50	50	67
Physical Structure	63	75	50	38	50	38	25	25
Biotic Structure	56	61	53	53	67	75	78	67
Overall Cram Score	**61**	**65**	**71**	**65**	**55**	**58**	**55**	**59**

Figure 3-5: CRAM Results



Assessment Area 1–Riverine

The AA1 was placed along the main channel of Los Peñasquitos Creek pilot channel, located just northwest of the commercial development adjacent to the Project and below the sediment plug. AA1 was characterized by a relatively deep and meandering channel surrounded by dense riparian vegetation including both native and non-native species. The vegetation communities include non-native riparian (giant reed-dominated), open water, and southern arroyo willow riparian forest. Dominant species within the AA include purple Arroyo willow, broad leaf cat tail (*Typha latifolia*), California sycamore, castor bean, giant reed, and pampas grass (*Cortaderia jubata*). This AA was surveyed using the one-sided method because the channel was non-wadable. The following attribute scores were calculated for AA1: Buffer and Landscape Context scored low at 49, Hydrology scored fair to good at 75, Physical Structure scored fair at 63, and Biotic Structure scored fair at 56. The overall score was fair at 61.

Assessment Area 2–Riverine

AA2 was placed directly downstream of AA1 at a break in the channel. An" island" consisting of sediment, trash, and a mixture of native and non-native species has caused the rerouting of the historic hydrologic alignment. At this point, the channel flows around the debris and vegetation "island" joining on the east side, at which point it runs along the toe of the railroad slope. AA2 was characterized as deep to shallow and represents a narrower section of Los Peñasquitos Creek compared to the upstream segment. The AA is characterized as having dense riparian vegetation including both native and non-native species. The vegetation communities include non-native riparian (giant reed-dominated), open water, and southern arroyo

willow riparian forest. The dominant species within this AA are Cape Ivy (*Delairea odorata*) pampas grass, castor bean, giant reed, arroyo willow, and California sycamore. This AA was surveyed using the two-sided method. The following attribute scores were calculated for AA2: Buffer and Landscape Context scored poor at 49, Hydrology scored fair to good at 75, Physical Structure scored fair to good at 75, and Biotic Structure scored fair at 61. The overall score was fair at 65.

Assessment Area 3–Riverine

AA3 was placed in an area along an existing freshwater channel that parallels the railroad tracks downstream of AA2. This area, classified as "riverine," is characterized by mulefat scrub and southern arroyo willow riparian forest. The vegetation communities include mulefat scrub, non-native riparian (pampas grass-dominated), open water, and southern arroyo willow riparian forest. The dominant species within this AA are pampas grass, San Diego marsh-elder, mulefat, and arroyo willow. This AA was surveyed using the one-sided method because the channel was non-wadable. The following attribute scores were calculated for AA3: Buffer and Landscape context at 90, Hydrology at 92, Physical Structure at 50, and Biotic Structure at 53, giving an overall score of 71.

Assessment Area 4-Riverine

AA4 was placed in an area along an existing, primarily freshwater channel that parallels the railroad tracks downstream of AA3. This area, classified as "riverine," is characterized as mulefat scrub, southern willow scrub, and coastal and valley freshwater marsh along the northwestern edge of the channel. The vegetation communities include mulefat scrub, open water, and southern willow scrub. The dominant species within this AA are African cornflag (*Chasmanthe floribunda*), black willow, broad leaf cat tail, and mulefat. This AA was surveyed using the one-sided method because the channel was non-wadable. The following attribute scores were calculated for AA4: Buffer and Landscape Context at 86, Hydrology at 83, Physical Structure at 38, and Biotic Structure at 53, giving an overall score of 65.

Assessment Area 5–Estuarine

AA5 was placed in a perennial estuarine area characterized with degraded southern coastal salt marsh and included an area with saltpan/mudflat.). The vegetation communities include saltpan/mudflat, southern coastal salt marsh, southern coastal salt marsh degraded. Dominant plants include salt-tolerant species such as alkali heath, and freshwater species, such as Parish's pickleweed (*Arthrocnemum subterminalis*), Pacific pickleweed, alkali-heath (*Frankenia salina*), and perennial rye grass (*Festuca perennis*). The following attribute scores were calculated: Buffer and Landscape Context at 60, Hydrology at 42, Physical Structure at 50, and Biotic Structure at 67, giving an overall score of 55.

Assessment Area 6–Estuarine

AA6 was placed in a perennial estuarine area characterized by degraded southern coastal salt marsh, coastal and valley freshwater marsh, and alkali meadow. The vegetation communities include alkali meadow, coastal and valley freshwater marsh, mulefat scrub, non-native riparian (giant reed-dominated), southern coastal salt marsh, southern coastal salt marsh degraded. Dominant plants include alkali heath, cocklebur, perennial rye grass, and viscid bulrush (*Schoenoplectus acutus* var. *occidentalis*). Buffer and Landscape Context at 67, Hydrology at 50, Physical Structure at 38, and Biotic Structure at 75, giving an overall score of 58.

Assessment Area 7– Estuarine

AA7 was placed in a perennial estuarine area characterized by degraded southern coastal salt marsh with patches of mulefat scrub. The vegetation communities include alkali meadow, mulefat scrub, non-native riparian (giant reed dominated), southern arroyo willow riparian forest, southern coastal salt marsh degraded. Dominant species include alkali-heath, mulefat, Pacific pickleweed, and perennial rye grass, and tall wheat grass. Buffer and Landscape Context at 68, Hydrology at 50, Physical Structure at 25, and Biotic Structure at 78, giving an overall score of 55.

Assessment Area 8–Estuarine

AA8 was placed in a perennial estuarine area characterized by degraded southern coastal salt marsh. AA8 is approximately 110 meters in diameter. The vegetation communities include southern coastal salt marsh and southern coastal salt marsh—degraded. Dominant plants include alkali heath and Pacific pickleweed. Buffer and Landscape Context at 78, Hydrology at 67, Physical Structure at 25, and Biotic Structure at 67, giving an overall score of 59.

3.5 Vegetation Communities/Other Land Cover Types

The BSA totals approximately 243.16 acres in size. The majority of the BSA consists of riparian and wetland habitats; upland habitats also have a large presence in the BSA, followed by other cover types such as developed, disturbed, and unvegetated habitats. Table 3-3 provides vegetation community and land cover type acreages within the BSA. Figure 3-6 and Figure 3-7 present the vegetation communities within the BSA, and the flora within each vegetation community is described in the following pages. The classification system and descriptions of the vegetation communities are based on Holland (1986) and Oberbauer (2008).

A total of 24 upland and lowland vegetation communities/land use cover types were identified, mapped, and verified within the BSA, many of which were wetland and/or riparian-associated habitat types. Collectively, the vegetation communities/land use cover types, associated acreages, and MSCP Tier levels that exist within the BSA, are presented in Table 3-3. It should be noted that due to changes in hydrologic conditions in Peñasquitos Creek/Lagoon and watershed urbanization much of the BSA is composed of historic non-tidal salt marsh habitat that has been degraded or converted to freshwater habitats. As such, some saline and brackish vegetation communities described below are likely the result of saline soil conditions but mostly lack saline or brackish surface hydrology.

A description of each vegetation community/land use cover type found within the BSA is provided in the sub-sections below. Figure 3-6 and Figure 3-7 present the vegetation communities mapped in 2016 and updated in 2020 through 2022.

Table 3-3: Vegetation Communities and Land Cover Types within the BSA

Holland Code	Vegetation Community/Land Cover Type	City Tier/ Wetlands	Acre(s)[1]
32400	Maritime Succulent Scrub	I	0.06
37900	Scrub Oak Chaparral	I	1.88
83140	Torrey Pine Forest	I	0.31
32500	Diegan Coastal Sage Scrub	II	45.72
32500	Diegan Coastal Sage Scrub – Disturbed	II	1.6

Table 3-3: Vegetation Communities and Land Cover Types within the BSA

Holland Code	Vegetation Community/Land Cover Type	City Tier/ Wetlands	Acre(s)[1]
63320	Blue Elderberry Series	II	2.84
42200	Non-native Grassland	IIIB	9.4
11300	Disturbed Habitat	IV	1.87
11300	Disturbed Habitat – Coastal Wattle	IV	0.01
11300	Iceplant	IV	0.58
12000	Developed	IV	12.14
11200	Disturbed Wetland	Wetland	0.05
45310	Alkali Meadow	Wetland	1.09
45320	Alkali Seep	Wetland	0.47
52120	Southern Coastal Salt Marsh	Wetland	12.92
52120	Southern Coastal Salt Marsh – Degraded	Wetland	41.26
52200	Coastal Brackish Marsh	Wetland	1.52
52410	Coastal and Valley Freshwater Marsh	Wetland	11.35
52410	Coastal and Valley Freshwater Marsh – Disturbed	Wetland	0.13
61320	Southern Arroyo Willow Riparian Forest	Wetland	66.42
63310	Mule Fat Scrub	Wetland	12.24
63320	Southern Willow Scrub	Wetland	3.2
63320	Southern Willow Scrub – Disturbed	Wetland	0.37
64100	Open Water	Wetland	6.91
64200	Non-vegetated Channel	Wetland	3.13
64300	Saltpan/Mudflats	Wetland	0.42
65000	Non-Native Riparian - Arundo	Wetland	4.74
65000	Non-Native Riparian - Pampas Grass	Wetland	0.44
65000	Non-Native Riparian - Tamarisk	Wetland	0.06
		Total	**243.16**

[1] Acreages summed using raw numbers provided during GIS analysis (available upon request) and thus the sum of the total rounded numbers2 may not directly add up in this table.

Figure 3-6: Overview of Vegetation Communities in the BSA

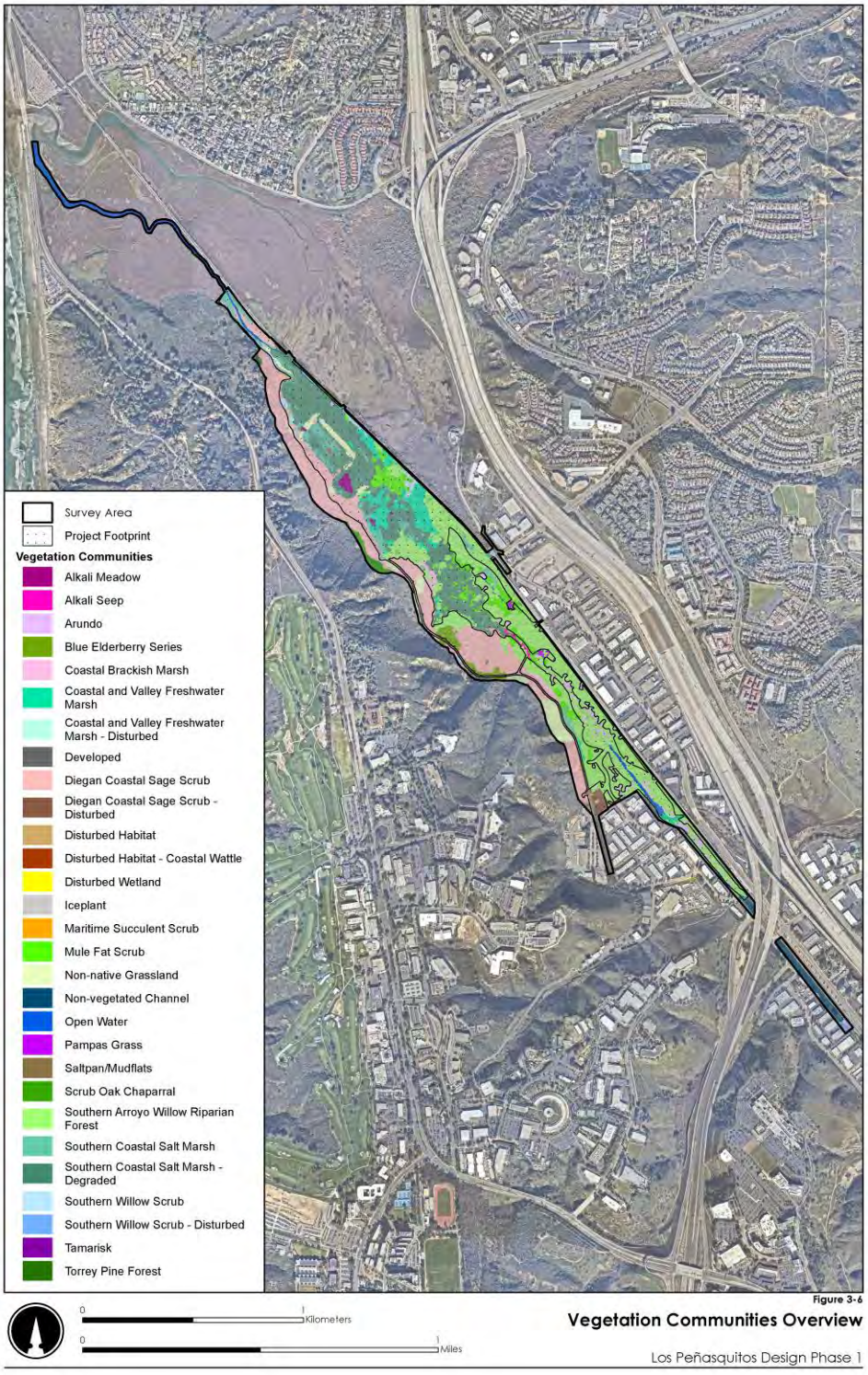
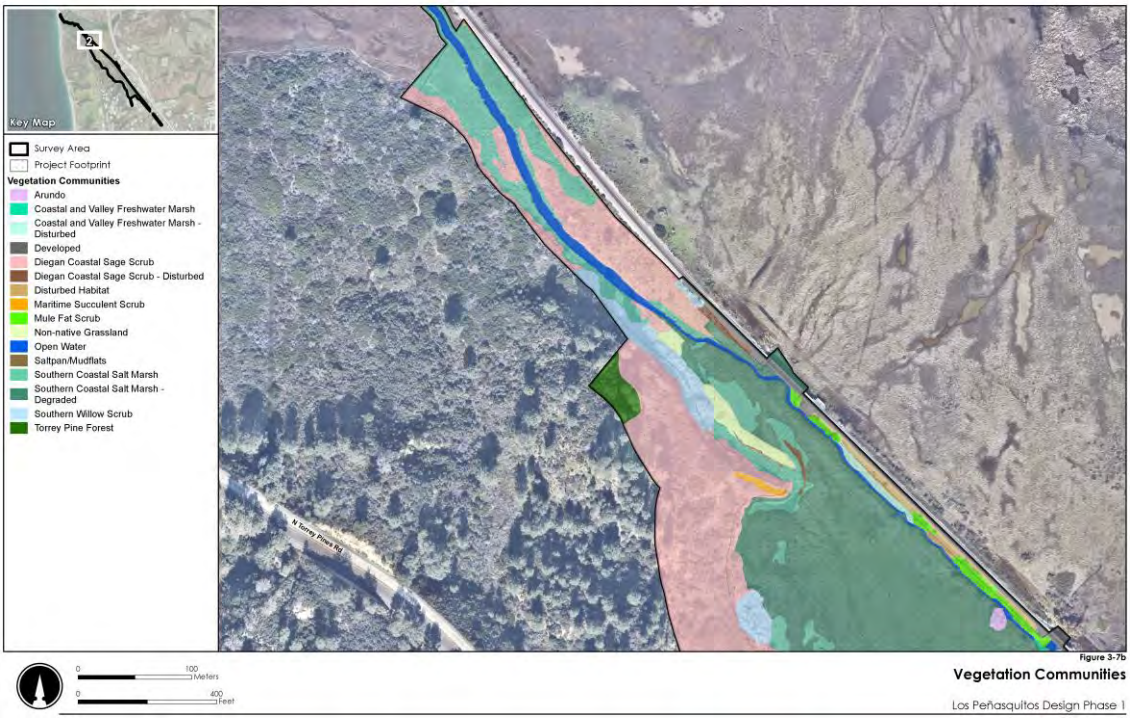


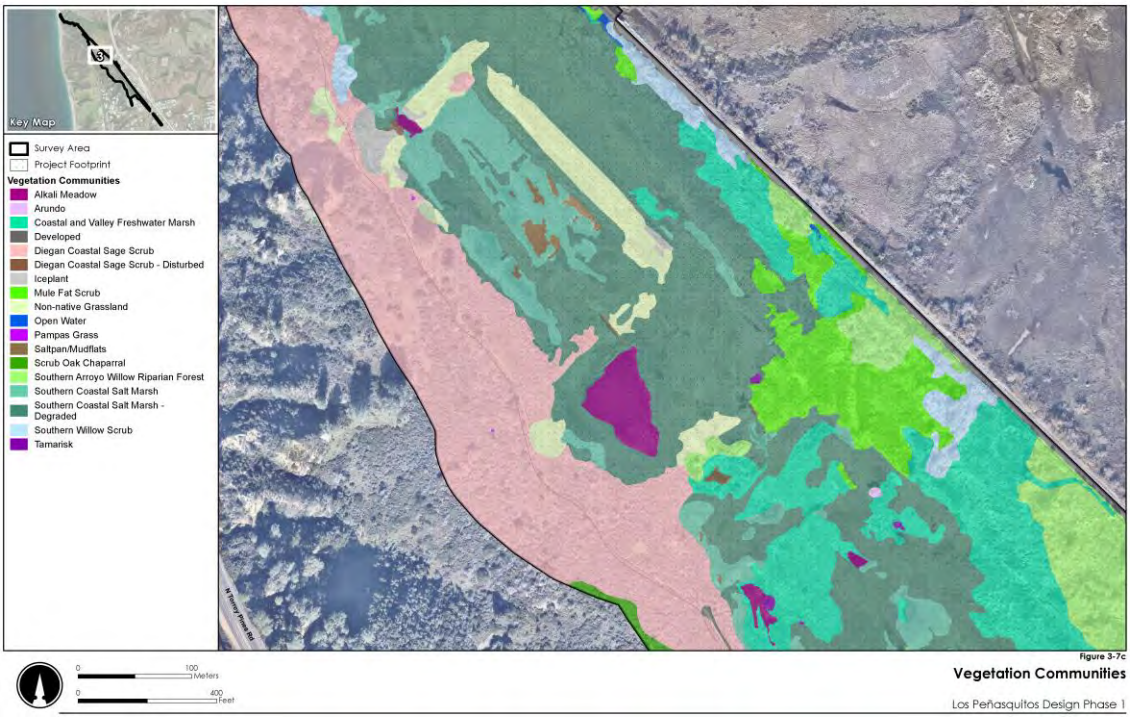
Figure 3-7: Vegetation Communities in the BSA

3-7a: Vegetation Communities in Area 1

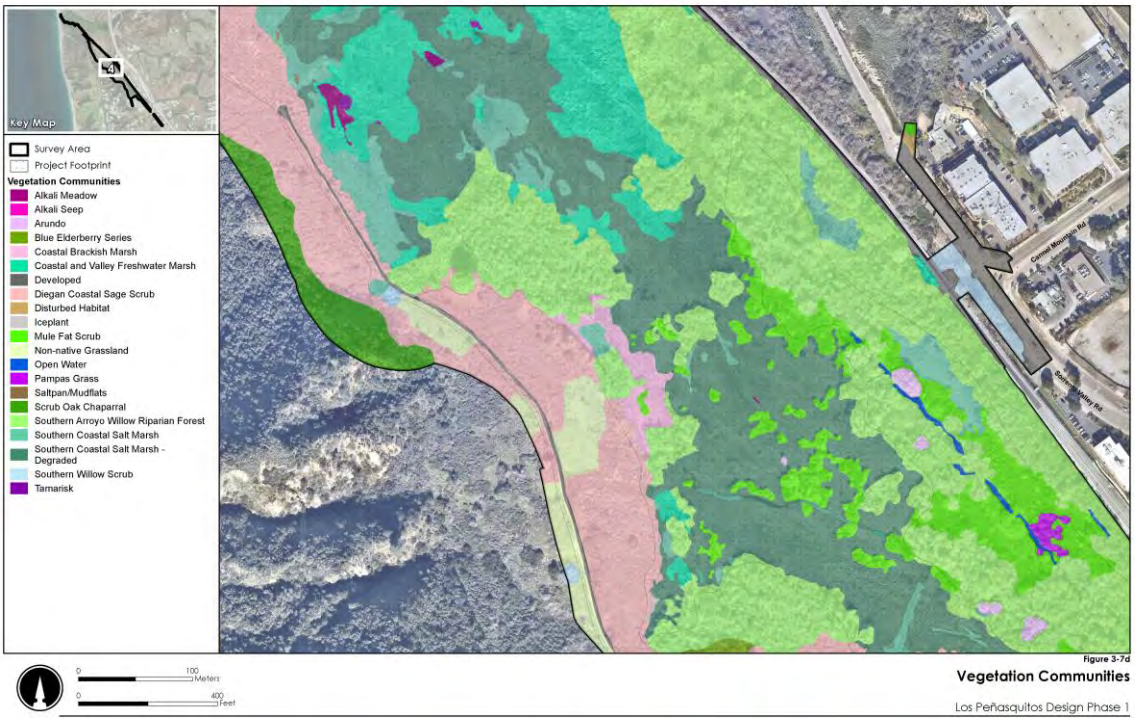
3-7b: Vegetation Communities Area 2



3-7c: Vegetation Communities Area 3



3-7d: Vegetation Communities Area 4



3-7e: Vegetation Communities Area 5

3-7f: Vegetation Communities Area 6

3-7g: Vegetation Communities Area 7

3-7h: Vegetation Communities Area 8

3.5.1 Maritime Succulent Scrub (32400, Tier I)

Maritime succulent scrub is a low, open coastal scrub type that includes a high percentage of stem and leaf succulents. This community is confined to the coastline and offshore islands from the Torrey Pines State Natural Reserve area south toward El Rosario, Baja California Norte, Mexico. Dominant plant species in this community include those listed for Diegan coastal sage scrub, along with coast cholla (*Cylindropuntia prolifera*) and coast prickly pear (*Opuntia littoralis*). A total of 0.06 acre of this community was mapped in one patch at the north end of the BSA. Special-status plant species found in this community include San Diego barrel cactus.

3.5.2 Scrub Oak Chaparral (37900, Tier I)

Scrub oak chaparral is a dense, evergreen chaparral community that grows up to 20 feet tall and includes Nuttall's scrub oak along with mountain mahogany (*Cercocarpus betuloides*). This community is typically more mesic than other chaparrals, and substantial leaf litter accumulates below the shrubs. Dominant plant species in this community in the BSA include Nuttall's scrub oak, lemonadeberry, and big pod ceanothus (*Ceanothus megacarpus*). A total of 1.88 acres of this community were mapped along the west-central edge of the BSA. Special-status plant species found in this community include California boxthorn (*Lycium californicum*), Nuttall's scrub oak, San Diego barrel cactus, and sea dahlia.

3.5.3 Torrey Pine Forest (83140, Tier I)

Torrey pine forest is an open to moderately dense coniferous forest that grows up to 20 meters tall in sheltered localities, becoming much shorter and wind-pruned in exposed situations. The dominant species is Torrey pine (*Pinus torreyana*). This community is globally rare and exists only along disjunct areas of the

San Diego coastline and some offshore islands. The understory varies from bare ground to grasses to dense chaparral. Denser tree canopies often result in little to no understory development, as the fallen needles tend to deter plant growth. This community occurs on soils derived from rocky sandstone with low precipitation. On the BSA, this community was dominated by Torrey pine and Nuttall's scrub oak, both special-status species. A total of 0.31 acre of this community was mapped on the northern end of the BSA. Other special-status species found in this community include coast wallflower and sea dahlia.

3.5.4 Diegan Coastal Sage Scrub (32500, Tier II)

Diegan coastal sage scrub is a localized form of coastal sage scrub composed of low, soft-woody subshrubs, many of which are facultatively drought-deciduous. The dominant characteristic species found within the BSA include California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), and coast goldenbush (*Isocoma menziesii*)). Other present species characteristic of this vegetation community include black and white sage (*Salvia melifera* and *Salvia apiana*), lemonadeberry (*Rhus integrifo*lia), laurel sumac (*Malosma laurina*), deerweed (*Acmispon glaber*), and California encelia (*Encelia californica*). The understory is dominated by non-native grasses and broad-leaved plants such as brome grasses and storksbills. A total of 45.72 acres of this community were mapped along the western slope of the BSA. Special-status plant species found in this community include coast wallflower, Del Mar mesa sand aster (*Corethrogyne filaginifolia* var. *linifolia*), Nuttall's scrub oak, San Diego barrel cactus (*Ferocactus viridescens*), San Diego sagewort, sea dahlia (*Leptosyne maritima*), sessileflower false goldenaster (*Heterotheca sessiliflora* var. *sessiliflora*), South Coast branching phacelia (*Phacelia ramosissima* var. *austrolitoralis*), and southwestern spiny rush.

Disturbed Diegan coastal sage scrub was mapped where the presence of non-native grass species and ruderal non-native annual plants (e.g., shortpod mustard (*Hirschfeldia incana*), tocalote (*Centaurea melitensis*)] were significantly more pronounced than non-disturbed coastal sage scrub variants. A total of 1.60 acres of this community were mapped in the BSA.

3.5.5 Blue Elderberry Series (63320, Tier II)

Blue elderberry series is similar to southern willow scrub but is dominated by blue elderberry (*Sambucus nigra* ssp. *caerulea*). Associated species in the BSA include arroyo willow, coyote brush (*Baccharis pilularis*), and laurel sumac (*Malosma laurina*). A total of 2.84 acres of this community was mapped in the BSA. Special-status plant species in this community include San Diego sagewort and South Coast branching phacelia.

3.5.6 Non-Native Grassland (42200, Tier IIIB)

Non-native grassland consists of dense to sparse annual grasses less than one meter high. Within the BSA, this community is dominated by perennial ryegrass, brome grasses, oats (*Avena* spp.), filarees (*Erodium* spp.), and mustards (Brassicaceae family). Other broadleaf weeds may also be present. A total of 9.40 acres of this community were mapped in the BSA. Special-status plant species found in this community include sessileflower false goldenaster and South Coast branching phacelia.

3.5.7 Disturbed Habitat (11300, Tier IV)

Disturbed areas have been physically altered by previous legal human activity and are no longer able to support a recognizable native or naturalized vegetation association. The soil is often highly compacted. Disturbed habitat within the BSA is located along a portion of the concrete-lined channel in the southern area of the BSA, along the paved roadway in the southwestern region of the BSA, and along portions of the railbed.

Mapped locations dominated by iceplant (*Carpobrotus edulis*) or coastal wattle *(Acacia cyclops)* were also included as disturbed habitat. A total of 2.46 acres of this community were mapped in the BSA.

3.5.8 Developed (12000)

Urban/developed areas have been physically altered to the point where they can no longer support native vegetation. The land cover type includes areas with permanent or semi-permanent structures, pavement or other hardscape, and landscaped areas that require irrigation. Developed areas include the ranger's residence at the central-western edge of the BSA, Flintkote Avenue, the paved extension of Flintkote Avenue that extends north of the ranger's residence, proximal portions of the railbed, the banks of the concrete-lined channel, irrigated, ornamental landscaping, portions of a hard-packed trail way, a concrete brow ditch, hard-packed road shoulders, and part of a materials yard. A total of 12.14 acres of this community were mapped in the BSA.

3.5.9 Disturbed Wetland (11200, Wetland)

Disturbed wetland includes areas that have been significantly modified by human activity, are permanently or periodically inundated by water, and may be unvegetated or contain scattered native or non-native vegetation, particularly wetland plants. Disturbed wetland within the review area (0.05 acre) includes an area south of Dunhill Street that is dominated by giant reed, curly dock (*Rumex crispus*), charlock mustard (*Sinapis arvensis*), castor bean (*Ricinus communis*), prickly sow-thistle (*Sonchus asper*), and bristly ox-tongue (*Helminthotheca echioides*).

3.5.10 Alkali Meadow (45310, Wetland)

Alkali meadows consist of dense to fairly open, low-growing perennial grasses, sedges, and herbaceous plants. Meadows typically feature only a few plant species that grow in fine-textured, more or less permanently moist, alkaline soils. In the BSA, alkali meadow is dominated by alkali weed (*Cressa truxillensis*) and western sea purslane (*Sesuvium verrucosum*). A total of 1.09 acres of this community were mapped in the BSA. Special-status plant species are generally not associated with this community, though southwestern spiny rush occurs immediately adjacent to one area. This vegetation community is located in areas that do not currently support tidal exchange, and therefore is likely supported by saline soil conditions.

3.5.11 Alkali Seep (45320, Wetland)

Alkali seeps consist primarily of a few species of perennial herbs in permanently moist to wet alkaline seeps. Dominant plant species include alkali heath, alkali mallow, and saltgrass (*Distichlis spicata*), as well as occasional pickleweeds. A total of 0.47 acre of this community was mapped in the BSA. The alkali seep vegetation community within the BSA includes the aforementioned species as well as two special-status species: San Diego marsh elder and southwestern spiny rush. This vegetation community is located in areas that do not currently support tidal exchange, and therefore is likely supported by saline soil conditions.

3.5.12 Southern Coastal Salt Marsh (52120, Wetland)

Southern coastal salt marsh occurs in bays, lagoons, and estuaries along the southern California coast. This vegetation community is characterized by salt-tolerant, succulent species. Southern coastal salt marsh within the BSA is dominated by Parish's glasswort (*Arthrocnemum subterminale*), alkali bulrush (*Bolboschoenus maritimus*), Pacific pickleweed (*Salicornia pacifica*), and alkali heath (*Frankenia salina).* A total of 12.92 acres of this community were mapped in the BSA. Special-status plant species in this vegetation community include

coast wallflower (*Erysimum ammophilum*), southwestern spiny rush (*Juncus acutus* ssp. *leopoldii*), San Diego marsh elder, and woolly seablite (*Suaeda taxifolia*).

Degraded coastal salt marsh was mapped where non-native perennial ryegrass, tall wheatgrass (*Elymus ponticus*), and/or other grasses were significantly more prevalent than pickleweeds, alkali heath, or alkali mallow (*Malvella leprosa*). The degraded coastal salt marsh forms a large part of the BSA and was caused by accumulated sedimentation over time that currently precludes tidal inundation. A total of 41.26 acres of this community were mapped in the BSA. Special-status plant species in this vegetation community include southwestern spiny rush and San Diego marsh elder.

3.5.13 Coastal Brackish Marsh (52200, Wetland)

Coastal brackish marsh is dominated by perennial, emergent, herbaceous monocots up to two meters tall. Cover is often complete and dense. This marsh type is an intergrade between salt marshes and freshwater marshes that features plants characteristic of each and has hydrology affected by both salt and fresh water. In the BSA, this community is dominated by alkali bulrush, yerba mansa (*Anemopsis californica*), cocklebur, alkali heath, and alkali mallow. A total of 1.52 acres of this community were mapped in the BSA. Special-status plant species in this vegetation community include southwestern spiny rush and San Diego marsh elder. This vegetation community is located in areas that do not currently support tidal exchange, and therefore is likely supported by saline soil conditions.

3.5.14 Coastal and Valley Freshwater Marsh (52410, Wetland)

Coastal and valley freshwater marsh is dominated by perennial monocots roughly 4–5 meters tall. Within the BSA, this vegetation community is composed of common tule (*Schoenoplectus acutus*), alkali bulrush (*Schoenoplectus americanus*), southern bulrush (*Schoenoplectus californicus*), and cattails (*Typha domingensis, T. latifolia*). A total of 11.35 acres of this community were mapped in the BSA. Special-status plant species in this vegetation community include southwestern spiny rush and San Diego marsh elder.

Disturbed coastal and valley freshwater marsh was mapped where non-native species and disturbance specialists [such as cocklebur (*Xanthium strumarium*)] were found in association with emergent wetland plants. A total of 0.13 acre of this community was mapped in the BSA.

3.5.15 Southern Arroyo Willow Riparian Forest (61320, Wetland)

Southern arroyo willow riparian forest is dominated by broad-leafed trees and arroyo willows (*Salix lasiolepis*) with a closed or nearly-closed canopy. Within the BSA, this community is dominated by arroyo willow, red willow (*Salix laevigata*), sand bar willow, and Goodding's black willow (*Salix gooddingii*). Some western sycamore trees (*Platanus racemosa*) are also dispersed throughout. An understory of invasive perennials and annuals plants is present; this understory includes giant reed, pampas grass, castor bean (*Ricinus communis*), hoary cress, brome grasses (*Bromus* spp.), little California melica (*Melica imperfecta*), and Bermuda buttercup (*Oxalis pes-capre*). A total of 66.42 acres of this community were mapped in the BSA. Special-status plant species in this community include Nuttall's scrub oak (*Quercus dumosa*), San Diego marsh-elder (*Iva hayesiana*), and San Diego sagewort (*Artemisia palmeri*).

3.5.16 Mule Fat Scrub (63310, Wetland)

Mule fat scrub is located along intermittent stream channels and around freshwater marshes. Mule fat (*Baccharis salicifolia*) is the dominant species within the BSA in this community. Mule fat scrub is patchily

distributed around the southern arroyo willow riparian forest, southern willow scrub, and marshlands within the southern and central regions of the BSA. A total of 12.24 acres of this community were mapped in the BSA. Special-status plant species in this community include southwestern spiny rush, San Diego marsh-elder, and San Diego sagewort.

3.5.17 Southern Willow Scrub (63320, Wetland)

Southern willow scrub consists of moderate density riparian woodland with predominately smaller riparian trees and some larger riparian trees throughout. Within the BSA, this community is composed mostly of arroyo willow and Gooding's black willow, with a non-native understory similar to that of the southern arroyo willow riparian forest with giant reed, pampas grass, castor bean, hoary cress, non-native bromes, melic, and Bermuda buttercup. Southern willow scrub is located in small patches, scattered adjacent to the southern arroyo willow riparian forest and Diegan coastal sage scrub within the BSA. A total of 3.20 acres of this community were mapped in the BSA. Special-status plant species in this community include coast wallflower, southwestern spiny rush, San Diego marsh-elder, and San Diego sagewort.

Disturbed southern willow scrub was mapped where invasive, non-native species (most notably, giant reed) were mapped in association with willow trees. A total of 0.37 acre of this community was mapped in the BSA.

3.5.18 Non-Vegetated Channel and Open Water (64100, 64200, Wetland)

Non-vegetated channel includes rocky or developed waterways or flood channels, as well as open water channels devoid of vegetation. These areas are permanently unvegetated due to permanent water, variable water levels, heavy scouring, and/or a shallow aquitard. The BSA includes approximately 3.13 acres of non-vegetated channel, which consists of a concrete-lined channel that brings water from urban runoff and rain events to the Pacific Ocean, as well as approximately 6.91 acres of open water channels. This community occurs mostly in the southern portion of the Project footprint but is also present in the central and northern portions of the Project footprint as a more natural channel not lined with concrete. Special-status plant species are generally not associated with this community, though southwestern spiny rush occurs immediately adjacent to the northernmost non-vegetated channel and San Diego sagewort occurs immediately adjacent to some areas of non-vegetated channel in the central and southern portions of the BSA.

3.5.19 Saltpan/Mudflats (64300, Wetland)

Saltpan/mudflats are coastal wetlands that form when mud is deposited by tides or rivers—most commonly occurring in bays and estuaries. Saltpan/mudflats occur in small fragments in the BSA where tidal influence is strongest and/or where the topography is lowest; these areas are mostly unoccupied by vegetation. A total of 0.42 acre of this community was mapped in the BSA.

3.5.20 Non-Native Riparian (65000, Wetland)

Non-native riparian consists of densely vegetated riparian thickets heavily dominated by invasive plant species. Within the BSA, this community consists largely of giant reed, tamarisk, castor bean, and pampas grass. Blue gum (*Eucalyptus globulus*), Canary Island date palm (*Phoenix canariensis*), and Mexican fan palm (*Washingtonia robusta*) make up many of the remaining tree species, and non-native species such as giant reed, pampas grass, castor bean, hoary cress, non-native bromes, melic, and Bermuda buttercup comprise the understory. Non-native riparian is dispersed throughout the southern arroyo willow riparian forest community within the BSA and was mapped as stands or locations of giant reed, pampas grass, and tamarisk. A total of 5.24 acres of this community were mapped on the BSA, consisting of approximately 4.74 acres of

giant reed (*Arundo* sp.), 0.44 acre of Pampas grass, and 0.06 acre of tamarisk. Mapping of areas dominated by monotypic giant reed and salt cedar are reflected in parentheticals in project figures. Special Special-status plant species are generally not associated with this community.

3.6 Sensitive Vegetation Communities

Tier I communities within the BSA include Torrey pine forest, scrub oak chaparral, and maritime succulent scrub. Wetland communities include non-native riparian (due to its occurrences within the larger riparian forests and scrubs), saltpan/mudflats, non-vegetated channel/open water, southern willow scrub, blue elderberry series (also Tier II), mule fat scrub, southern arroyo willow riparian forest, coastal and valley freshwater marsh, coastal brackish marsh, southern coastal salt marsh, alkali seep, and alkali meadow. Diegan coastal sage scrub is the only upland Tier II community, and non-native grassland (Tier IIIB) is the only Tier III community located within the BSA. Disturbed is a Tier IV community and developed has no classification. The tiers of different habitats, including wetlands, also correspond to required mitigation ratios to compensate for habitat loss. Generally, higher-quality habitat tiers (with Wetlands and Tier I considered the highest quality) require more mitigation than lower habitat tiers (see Table 3 of the City's Biology Guidelines). The analysis of the vegetation community acreages for each of the MSCP habitat types and levels with proposed mitigation ratios are presented in Section 4.

3.7 Rare, Threatened, Endangered, Narrow Endemic, Special-Status and MSCP-Covered Species

Special-status species include plant and wildlife species that have been afforded special recognition by federal, state, and/or local resource agencies or organizations. Listed and special-status species are of relatively limited distribution and may require specialized habitat conditions. Special-status species are defined as meeting one or more of the following criteria:

- Listed or proposed for listing under CESA or FESA
- Protected under other regulations (e.g., MBTA)
- CDFW Species of Special Concern
- Listed as a species of concern by CNPS or USFWS
- Receive consideration during environmental review under CEQA
- Covered or narrow endemic species under the MSCP

Special-status species considered for this analysis were based on queries of CNDDB, USFWS, SanBIOS, CNPS, and field survey results (see Figure 3-8 and Figure 3-9). The following criteria were used to determine the potential for occurrence in the BSA for each special-status plant species evaluated:

- **Present:** Species is known to occur based on recent observation/detection by State Parks staff (i.e., Darren Smith or Mike Hastings), observation/detection during general biological surveys, or the species has been observed during focused surveys or other recent surveys performed within the BSA or its immediate vicinity.
- **High:** Species is known to occur near the BSA (based on CNDDB, USFWS, SanBIOS, CNPS, or other records search of the BSA or based on professional expertise specific to the BSA or species) in recent years (i.e., last 25 years), and there is highly suitable habitat within the BSA and/or its immediate

vicinity. Suitable habitat includes all necessary habitat elements to support the species (e.g., habitat type, soils, cover, food and water resources, etc.).

- **Moderate:** Species is known to occur in the vicinity of the BSA; however, there is marginal habitat within the BSA, the entire BSA has not yet been surveyed fully in suitable habitats for the species, or general surveys have been performed and the species has not been observed. Suitable habitat for the species could be fragmented, disturbed, or small/limited in size.
- **Low:** Species either has few or no known recent (i.e., last 25 years) recorded occurrences/populations nearby, suitable habitat within the BSA is extremely limited or highly disturbed, the entire BSA has not yet been surveyed fully for the species, or general/focused surveys have been performed and the species has not been observed. Suitable habitat for the species could be highly fragmented, too disturbed, or small/limited in size.
- **Unlikely/Presumed absent:** Species has either few or no known recent (i.e., last 25 years) recorded occurrences/populations nearby, no suitable habitat occurs within the BSA, and/or the species has not been observed during general or focused surveys.

All special-status plant and wildlife species that resulted from the records searches and previous surveys were assessed for their potentials to occur can be found in Tables 3-4 and 3-5, respectively. Those species known to be present or that have a high to moderate potential for occurrence are discussed further in Section 3.7.1 and Section 3.7.2.

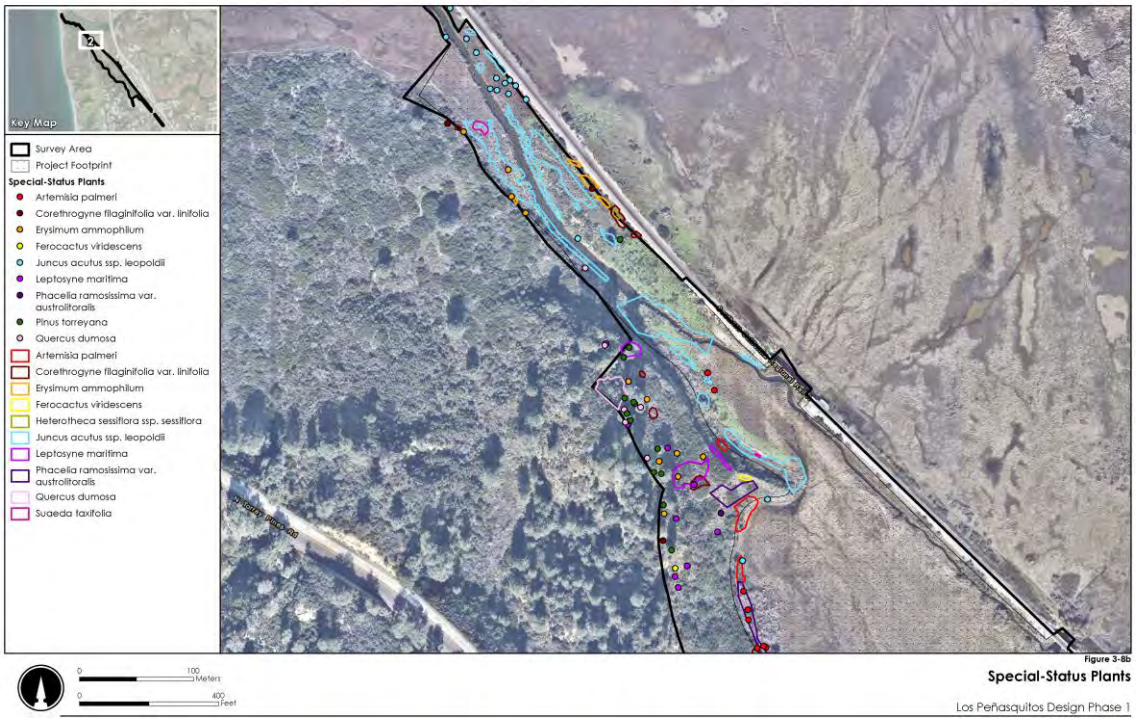
3.7.1 Special-Status Plants Potentials for Occurrence

Table 3-4 includes the common and scientific names of each special-status plant species that was evaluated, regulatory status (federal, state, local), habitat descriptions, and potential for occurrence within the BSA. A total of 77 special-status plant species were evaluated for potential to occur within the BSA. Out of the 77 plant species evaluated and following the results of the focused rare plant surveys, 14 are present within the BSA, 19 have a low potential to occur, and 44 are presumed absent; these species are discussed in further detail below and in the following subsections. The focused rare plant survey results, performed in spring 2016 and spring/summer 2020, are reflected in the potential of some plant species for which presence was found. For example, some species found present during focused surveys, but for which a preliminary potential of moderate to high was hypothesized before conducting the focused surveys, will show the status as present, while other species that would be likely to be observed if occurring within the BSA may have been downgraded to a lower potential to occur following the focused surveys, allowing latitude for detectability during optimal rainfall years for certain species. Most special-status species assigned a preliminary potential for occurrence from low to moderate before the surveys were presumed absent following the surveys. Following the focused rare plant surveys, certain species known to occur in the Project vicinity with diminutive, obscure, temporally limited, and/or otherwise difficult to detect morphologies, were assigned low to moderate potentials for occurrence, as these species may still exist in the BSA during more favorable years for their growth, or in very limited areas that may have gone undetected. Special-status species detected are depicted in Figure 3-8; individual or small group occurrences are generally mapped as points, whereas larger stands (typically greater than 0.1-acre) are mapped as polygons.

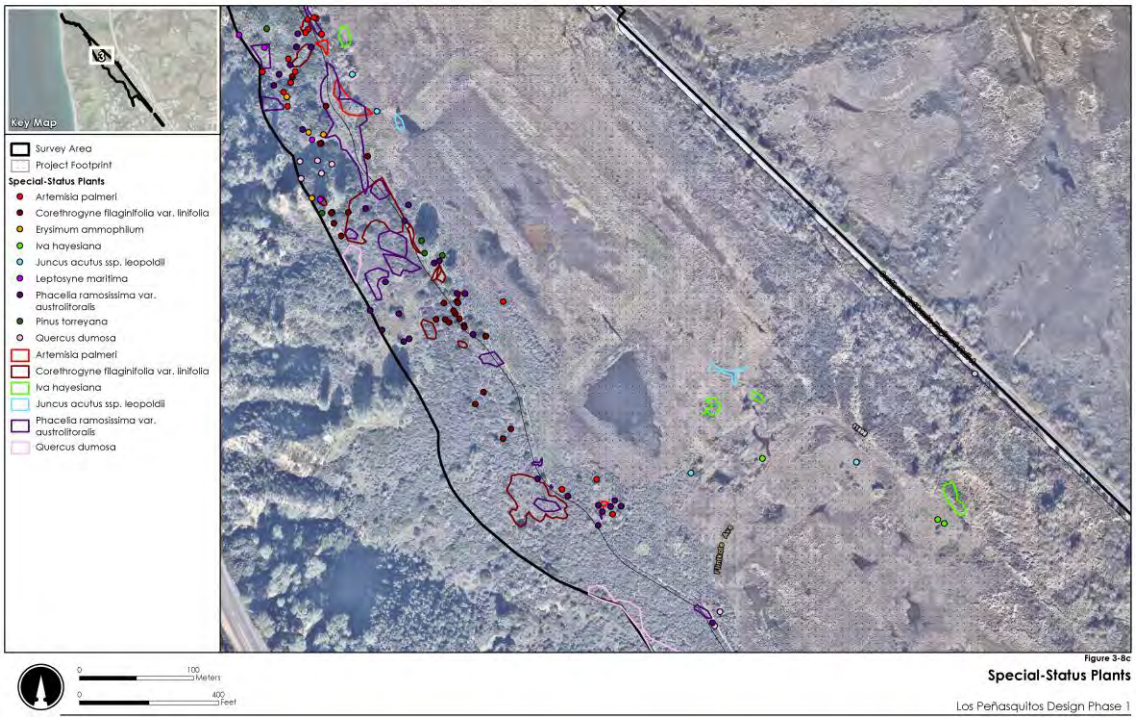
Figure 3-8: Special Status Plant Species in the BSA

3-8a: Special Status Plant Species Area 1

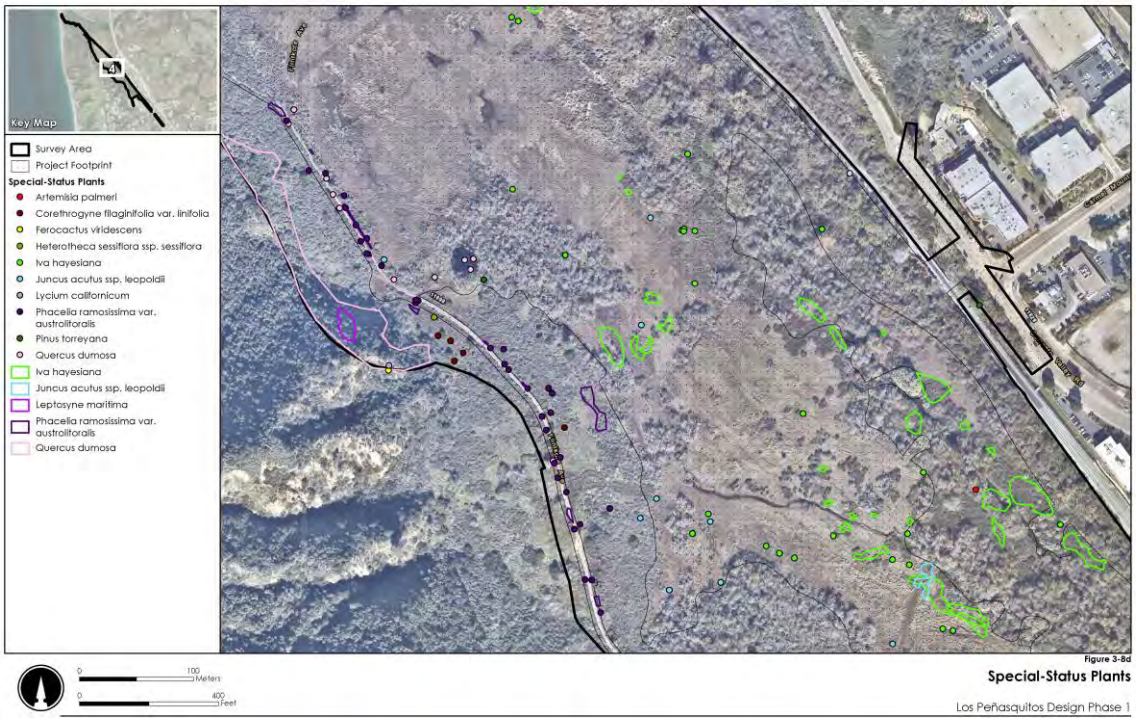
3-8b: Special Status Plant Species Area 2



3-8c: Special Status Plant Species Area 3



3-8d: Special Status Plant Species Area 4



3-8e: Special Status Plant Species Area 5

3-8f: Special Status Plant Species Area 6

3-8g: Special Status Plant Species Area 7

3-8h: Special Status Plant Species Area 8

Table 3-4: Potential and Observed Special-Status Plant Species Occurring Within the BSA

Species	Status[1] Federal/State/ CRPR/City	Habitat Requirements	Potential to Occur
Red sand-verbena (*Abronia maritima*)	--/--/ 4.2/--	Annual herb found in sandy soils within coastal dunes. Blooming period from January–September. Occurs at elevations of 0 to 100 meters.	**Presumed absent.** Suitable sandy habitat is not present within the BSA or immediate vicinity. Not found during focused rare plant surveys in 2016 or 2020.
San Diego thorn-mint (*Acanthomintha ilicifolia*)	FT/SE/ 1B.1/Covered	Annual herb found in chaparral, coastal scrub, valley and foothill grasslands, and vernal pools; in clay openings. Blooming period is April–June. Occurs at elevations from 10 to 960 meters.	**Presumed absent.** Suitable clay soils are not present within the BSA or immediate vicinity. Not found during focused rare plant surveys in 2016 or 2020.
Nuttall's acmispon (*Acmispon prostratus*)	--/--/ 1B.1/Covered	Annual herb found in coastal dunes and sandy coastal scrub. Blooming period is March–July and is found at 1 to 10 meters in elevation.	**Presumed absent.** Suitable habitat is generally not found within the BSA or immediate vicinity. Not found during focused rare plant surveys in 2016 or 2020.

Table 3-4: Potential and Observed Special-Status Plant Species Occurring Within the BSA

Species	Status[1] Federal/State/ CRPR/City	Habitat Requirements	Potential to Occur
California adolphia (*Adolphia californica*)	--/--/ 2B.1/--	Perennial deciduous shrub occurs in clay soils in chaparral, coastal scrub, and valley and foothill grassland. Blooming period is December–May and can be found at 45 to 740 meters in elevation.	**Presumed absent.** Suitable soils are not present within the BSA or immediate vicinity. Not found during focused rare plant surveys in 2016 or 2020.
Shaw's agave (*Agave shawii* var. *shawii*)	--/--/ 2B.1/Covered	Perennial leaf succulent in maritime succulent scrub, coastal bluff scrub, and coastal scrub. Found at 10–120 meters; blooming period is from September–May.	**Presumed absent.** Suitable habitat exists within the BSA and the immediate vicinity. This species is known to occur in TPNSR. However, this species was not found during focused rare plant surveys in 2016 or 2020.
Singlewhorl burrobrush (*Ambrosia monogyra*)	--/--/ 2B.2/--	Perennial shrub found in sandy soils in chaparral or Sonoran Desert scrub. Found at 10 to 500 m and blooming period is August–November.	**Presumed absent.** Suitable habitat is not present within the BSA or immediate vicinity. Not found during focused rare plant surveys in 2016 or 2020.
San Diego ambrosia (*Ambrosia pumila*)	FE/--/ 1B.1/Covered	Perennial rhizomatous herb found in chaparral, coastal scrub, valley and foothill grassland in alkali sandy loam or clay soils. Persists where disturbance has been superficial, sometimes near margins. Occurs from 20 to 415 m and blooms from April–October.	**Low.** Suitable habitat is present within the BSA or immediate vicinity; does well in disturbed areas. Few known recent recorded occurrences or populations nearby. Has not been observed in recent surveys. Not found during focused rare plant surveys in 2016 or 2020.
Aphanisma (*Aphanisma blitoides*)	--/--/ 1B.2/Covered	Annual herb found in coastal bluff scrub, coastal dunes, and coastal scrub; sandy soils. Blooming period is March–June and found at elevations from 1 to 305 meters.	**Low.** Habitat within BSA or immediate vicinity is marginal. Few recent recorded occurrences or populations recorded nearby. Has not been observed in recent surveys. Not found during focused rare plant surveys in 2016 or 2020.
Del Mar manzanita (*Arctostaphylos glandulosa* ssp. *crassifolia*)	FE/--/ 1B.1/Covered	Perennial evergreen found in sandy, maritime chaparral at elevations from 0 to 365 meters. Blooming period is December–June.	**Presumed absent.** Suitable habitat is generally not found within the BSA or immediate vicinity, though it is known to occur in TPNSR. However, it was not found during focused rare plant surveys in 2016 or 2020.

Table 3-4: Potential and Observed Special-Status Plant Species Occurring Within the BSA

Species	Status[1] Federal/State/ CRPR/City	Habitat Requirements	Potential to Occur
San Diego sagewort (*Artemisia palmeri*)	--/--/ 4.2/--	Perennial deciduous herb found in chaparral, coastal scrub, riparian forest, riparian scrub, and riparian woodland; sandy, mesic soils at 15 to 915 meters in elevation. Blooming period is February–September.	**Present.** Documented within the BSA during recent surveys or site visits. Approximately 374 individuals were mapped in 98 locations during the focused rare plant survey in 2020, and this species was previously documented onsite in 2016.
Coastal dunes milk-vetch (*Astragalus tener* var. *titi*)	FE/SE/ 1B.1/Covered	Annual herb often found in vernally mesic areas in sandy coastal bluff scrub, coastal dunes, and mesic coastal prairie from 1 to 50 meters in elevation. Blooming period is March–May.	**Presumed absent.** Suitable habitat is not generally found within the BSA or immediate vicinity. Only one historical occurrence (c. 1880) is known near the Project site. Not found during focused rare plant surveys in 2016 or 2020.
Coulter's saltbush (*Atriplex coulteri*)	--/--/ 1B.2/--	Found on alkaline or clay substrate within coastal bluff scrub, coastal dune, coastal scrub and valley and foothill grassland habitats. Blooming period is March–October. Occurs at elevations from 3 to 460 meters.	**Low.** Suitable habitat is present within the BSA and immediate vicinity. Species is known to occur near the BSA in recent years. However, this species was not found during focused rare plant surveys in 2016 or 2020.
South Coast saltscale (*Atriplex pacifica*)	--/--/ 1B.2/--	Found within chenopod scrub, coastal bluff and coastal scrub habitats. Blooming period is March–October. Occurs at elevations up to 140 meters.	**Low.** Suitable habitat is present within the BSA and immediate vicinity. Species is known to occur in the TPNSR near the BSA in recent years. However, this species was not found during focused rare plant surveys in 2016 or 2020.
Parish's brittlescale (*Atriplex parishii*)	--/--/ 1B.1/--	Found in alkali meadows, vernal pools, playas, and chenopod scrub. Associated with alkaline soils. Blooming period is June–October. Occurs at 25 to 1900 meters in elevation.	**Low.** Suitable habitat is present within the BSA and immediate vicinity. Species is known to occur near the BSA in recent years. However, this species was not found during focused rare plant surveys in 2016 or 2020.
Encinitas baccharis (*Baccharis vanessae*)	FT/SE/ 1B.1/Covered	Mixed maritime chaparral and Torrey pine woodland; located mainly in northern coastal San Diego County.	**Presumed absent.** Suitable habitat is generally not found within the BSA or immediate vicinity. Not found during focused rare plant surveys in 2016 or 2020.

Table 3-4: Potential and Observed Special-Status Plant Species Occurring Within the BSA

Species	Status[1] Federal/State/ CRPR/City	Habitat Requirements	Potential to Occur
Nevin's barberry (*Berberis nevinii*)	FE/SE/ 1B.1/Covered	Perennial, evergreen, holly-leafed, multi-trunked shrub found in chaparral, foothill woodland, washes and coastal sage scrub habitats. Prefers sandy to gravelly soils. Blooming period is April through May and grows from sea level to 650 meters in elevation.	**Presumed absent.** Suitable habitat exists in densely vegetated slopes on the western edge of the BSA, and the species is known to occur in TPNSR. However, this species was Not found during focused rare plant surveys in 2016 or 2020.
Golden-spined cereus (*Bergerocactus emoryi*)	--/--/ 2B.2/--	Perennial stem succulent sound in sandy soils in closed-cone coniferous forest, chaparral, and coastal scrub. Occurs at 3 to 395 meters in elevation and blooming period is May–June.	**Presumed absent.** Habitat within BSA or immediate vicinity is marginal. Few recent recorded occurrences or populations recorded nearby. Has not been observed in recent surveys. Not found during focused rare plant surveys in 2016 or 2020.
San Diego goldenstar (*Bloomeria clevelandii*)	--/--/ 1B.1/--	Perennial bulbiferous herb that occurs in chaparral, coastal scrub, valley and foothill grasslands, and vernal pools at elevations from 50 to 465 meters. Blooming period is April–May.	**Presumed absent.** Required soils are not present within the BSA or immediate vicinity. Has not been observed in recent surveys. Not found during focused rare plant surveys in 2016 or 2020.
Thread-leaved brodiaea (*Brodiaea filifolia*)	FT/SE/ 1B.1/Covered	Found on clay substrate within chaparral, cismontane woodland, coastal scrub, and valley and foothill habitats. Microhabitats for the species include playas and vernal pools. Blooming period is March–June and occurs at elevations from 25 to 1,120 meters.	**Presumed absent.** Required soils are not present within the BSA or immediate vicinity; suitable habitat is limited. Has not been observed in recent surveys. Not found during focused rare plant surveys in 2016 or 2020.
Orcutt's brodiaea (*Brodiaea orcuttii*)	--/--/ 1B.1/Covered	Found in coastal bluff scrub and coastal dunes, on sandy sites at elevations of 3 to 100 meters. Blooming period is January–August.	**Presumed absent.** Suitable habitat is not present within BSA or immediate vicinity. Not found during focused rare plant surveys in 2016 or 2020.

Table 3-4: Potential and Observed Special-Status Plant Species Occurring Within the BSA

Species	Status[1] Federal/State/ CRPR/City	Habitat Requirements	Potential to Occur
Lewis' evening primrose (*Camissoniopsis lewisii*)	--/--/ 3/--	Annual herb found in sandy or clay soils in cismontane woodlands, valley and foothill grasslands, coastal dunes, and coastal scrub. Blooming period is March–June and occurs at elevations of 0 to 300 meters.	**Low.** Suitable habitat is present within the BSA or immediate vicinity. Species is known to occur near the BSA in recent years. However, this species was not found during focused rare plant surveys in 2016 or 2020.
Lakeside ceanothus (*Ceanothus cyaneus*)	--/--/ 1B.2/Covered	Perennial evergreen shrub found in closed-cone coniferous forest and chaparral at elevations of 235 to 755 meters. Blooming period is April–June.	**Presumed absent.** Suitable habitat is not found within the BSA or immediate vicinity. Not found during focused rare plant surveys in 2016 or 2020.
Wart-stemmed ceanothus (*Ceanothus verrucosus*)	--/--/ 2B.2/Covered	Perennial evergreen shrub found in chaparral habitat. Blooming period is December–May and occurs at 1 to 380 meters in elevation.	**Presumed absent.** Suitable habitat is found onsite and in the vicinity. This species is known to occur commonly on TPNSR. However, it was not found during focused rare plant surveys in 2016 or 2020.
Southern tarplant (*Centromadia parryi* ssp. *australis*)	--/--/ 1B.1/--	Found in the margins of marshes and swamps, vernally mesic valley and foothill grasslands, and vernal pool habitats. This species is commonly found in disturbed areas, in relatively close proximity to a seasonal or perennial water source. Blooming period is May–November and occurs at elevations up to 425 meters.	**Presumed absent.** Limited suitable habitat within BSA or immediate vicinity. Few recent recorded occurrences or populations recorded nearby. Has not been observed in recent surveys. Not found during focused rare plant surveys in 2016 or 2020.
Orcutt's pincushion (*Chaenactis glabriuscula* var. *orcuttiana*)	--/--/ 1B.1/--	Annual herb found in coastal bluff scrub and coastal dunes, on sandy sites at elevations of 3 to 100 meters. Blooming period is January–August.	**Low.** Limited suitable habitat within BSA or immediate vicinity, but recent recorded occurrences or populations have been recorded nearby. However, this species was not found during focused rare plant surveys in 2016 or 2020.

Table 3-4: Potential and Observed Special-Status Plant Species Occurring Within the BSA

Species	Status[1] Federal/State/ CRPR/City	Habitat Requirements	Potential to Occur
Orcutt's spineflower (*Chorizanthe orcuttiana)*	FE/SE/ 1B.1/--	Annual herb found in sandy openings in maritime chaparral, coastal scrub, and closed-cone coniferous forests at elevations from 3 to 125 meters. Blooming period is March–May.	**Low.** Habitat within BSA or immediate vicinity is marginal. Singular recently recorded occurrence recorded nearby. Has not been observed in recent surveys. Not found during focused rare plant surveys in 2016 or 2020.
Long-spined spineflower (*Chorizanthe polygonoides* var. *longispina*)	--/--/ 1B.2/--	Annual herb found in chaparral, coastal scrub, meadows, valley and foothill grassland in gabbroic clay soils from 30 to 1,530 meters in elevation. Blooming period is April–July.	**Presumed absent.** Suitable soils do not occur within BSA or immediate vicinity. This species is known to occur in TPNSR. However, it was not found during focused rare plant surveys in 2016 or 2020.
Summer holly (*Comarostaphylis diversifolia* ssp. *diversifolia*)	--/--/ 1B.2/--	Perennial evergreen shrub found in chaparral and cismontane woodland. Blooming period is April–June and is found at elevations of 30 to 790 meters.	**Presumed absent.** Suitable habitat is generally not present within the BSA or immediate vicinity, though this species is known to occur in TPNSR. However, it was not found during focused rare plant surveys in 2016 or 2020.
San Diego sand aster (*Corethrogyne filaginifolia* var. *incana*)	--/--/ 1B.1/--	Perennial herb found in coastal bluff scrub, chaparral, and coastal scrub at elevations from 3 to 115 meters. Blooming period is June–September.	**Low.** Suitable habitat is present within the BSA and immediate vicinity. Species is known to occur near the BSA in recent years. However, this species was not found during focused rare plant surveys in 2016 or 2020.
Del Mar Mesa sand aster (*Corethrogyne filaginifolia* var. *linifolia*)	--/--/ 1B.1/Covered	Perennial herb found in coastal bluff scrub, openings in maritime chaparral, and coastal scrub at elevations from 15 to 150 meters. Blooming period is May–September.	**Present.** Suitable habitat is present. Documented within the BSA during recent surveys and site visits. Approximately 1,963 individuals were mapped in 45 locations during the rare plant surveys in 2020.
Wiggins' cryptantha (*Cryptantha wigginsii*)	--/--/ 1B.2/--	Found within coastal scrub habitats, often on clay soils 20 to 275 meters. Blooming period is February–June. Occurs at 20 to 275 meters.	**Presumed absent.** Suitable habitat is generally not found within the BSA or immediate vicinity. Few recent recorded occurrences/populations recorded nearby. Not found during focused rare plant surveys in 2016 or 2020.

Table 3-4: Potential and Observed Special-Status Plant Species Occurring Within the BSA

Species	Status[1] Federal/State/ CRPR/City	Habitat Requirements	Potential to Occur
Snake cholla (*Cylindropuntia californica* var. *californica*)	--/--/ 1B.1/--	Perennial stem succulent found in chaparral and coastal scrub from 30 to 150 meters in elevation. Blooming period is April–May.	**Presumed absent.** Habitat within BSA or immediate vicinity is marginal. Few recent recorded occurrences or populations recorded nearby; however, has not been observed in recent surveys. Not found during focused rare plant surveys in 2016 or 2020.
Western dichondra (*Dichondra occidentalis*)	--/--/ 4.2/--	Perennial rhizomatous herb in chaparral, cismontane woodlands, coastal scrub, and valley and foothill grasslands. Occurs at 20 to 500 meters in elevation. Blooming period is January–July.	**Low.** Habitat within BSA or immediate vicinity is marginal. Several recent occurrences and populations recorded nearby, and it is known to occur on TPNSR. However, it was not found during focused rare plant surveys in 2016 or 2020.
Blochman's dudleya (*Dudleya blochmaniae* ssp. *blochmaniae*)	--/--/ 1B.1/--	Perennial herb found in coastal bluff scrub, chaparral, coastal scrub, and valley and foothill grasslands; in rocky, often clay or serpentinite soils at 5 to 450 meters in elevation. Blooming period is April–June.	**Presumed absent.** Suitable soils do not occur within the BSA or immediate vicinity. Few recent recorded occurrences or populations recorded nearby. Not found during focused rare plant surveys in 2016 or 2020.
Short-leaved dudleya (*Dudleya brevifolia*)	--/SE/ 1B.1/Covered	Perennial herb found in openings in maritime chaparral and coastal scrub; in Torrey sandstone at 30 to 250 meters in elevation. Blooming period is April–May.	**Presumed absent.** Suitable soils do not occur within BSA or immediate vicinity. This species is known to occur in TPNSR. However, it was not found during focused rare plant surveys in 2016 or 2020.
Variegated dudleya (*Dudleya variegata*)	--/--/ 1B.2/Covered	Perennial herb found in chaparral, cismontane woodland, coastal scrub, valley and foothill grassland, and vernal pools; in clay soils. Blooming period is April–June and occurs at elevations from 3 to 580 meters.	**Presumed absent.** Suitable clay soils not present within the BSA or immediate vicinity. Not found during focused rare plant surveys in 2016 or 2020.

Table 3-4: Potential and Observed Special-Status Plant Species Occurring Within the BSA

Species	Status[1] Federal/State/ CRPR/City	Habitat Requirements	Potential to Occur
Sticky dudleya (*Dudleya viscida*)	--/--/ 1B.2/Covered	Found in coastal scrub, coastal bluff scrub and chaparral on north- and south-facing cliffs and banks at elevations of 10 to 550 meters.	**Presumed absent.** Habitat within BSA or immediate vicinity is marginal. Few recent recorded occurrences or populations recorded nearby; however, has not been observed in recent surveys. Not found during focused rare plant surveys in 2016 or 2020.
Palmer's goldenbush (*Ericameria palmeri* var. *palmeri*)	--/--/ 1B.1/Covered	Perennial evergreen shrub found in chaparral and coastal scrub; in mesic soils at 30 to 600 meters in elevation. Blooming period is July–November.	**Presumed absent.** Suitable soils do not occur within BSA or immediate vicinity. Not found during focused rare plant surveys in 2016 or 2020.
San Diego button-celery (*Eryngium aristulatum var. parishii*)	FE/SE/ 1B.1/ Covered	Found in vernal pools, coastal scrub, valley and foothill grassland. San Diego mesa hardpan and claypan vernal pools and southern interior basal flow vernal pools, usually surrounded by scrub at elevations of 15 to 620 meters.	**Presumed absent.** Suitable habitat and soils are not present within the BSA or immediate vicinity. Not found during focused rare plant surveys in 2016 or 2020.
Coast wallflower (*Erysimum ammophilum*)	--/--/ 1B.2/Covered	Found in coastal strand communities along dunes or sandy soils in coastal sage scrub. Blooming period is February-June, and it occurs at elevations up to 50 meters.	**Present.** Suitable habitat is found within the uplands of the BSA. Approximately 204 individuals were found in 19 locations in the BSA during the focused rare plant surveys in 2020.
Cliff spurge (*Euphorbia misera*)	--/--/ 2B.2/--	Perennial shrub found in coastal bluff scrub, coastal scrub, and Mojavean desert scrub; rocky soils. Blooming period is December–October and occurs at elevations of 10 to 500 meters.	**Presumed absent.** Limited, low-quality habitat is present within the BSA or immediate vicinity. Required soils are not present. Has not been observed in recent surveys. Not found during focused rare plant surveys in 2016 or 2020.
San Diego barrel cactus (*Ferocactus viridescens*)	--/--/ 2B.1/Covered	Perennial succulent found in chaparral, coastal scrub, valley and foothill grasslands, and vernal pools. Blooming period is May–June and occurs at 3 to 450 meters in elevation.	**Present.** Suitable habitat is present within the BSA and immediate vicinity, and the species occurs adjacent to BSA. Nine individual plants were found during focused rare plant surveys in 2020.

Table 3-4: Potential and Observed Special-Status Plant Species Occurring Within the BSA

Species	Status[1] Federal/State/ CRPR/City	Habitat Requirements	Potential to Occur
Palmer's frankenia (*Frankenia palmeri*)	--/--/ 2B.1/--	Perennial herb found in coastal dunes, marshes and swamps (coastal salt), and playas. Blooming period is May–July and occurs at 0 to 10 meters in elevation.	**Low.** Suitable habitat is present within the BSA and immediate vicinity. Species is known to occur near the BSA in recent years. However, this species was not found during focused rare plant surveys in 2016 or 2020.
Campbell's liverwort (*Geothallus tuberosus*)	--/--/ 1B.1/--	Found in coastal scrub and vernal pools. Known from mesic soil at elevations of 10 to 600 meters.	**Presumed absent.** Habitat within BSA or immediate vicinity is marginal. No known recent recorded occurrences or populations recorded nearby. Not found during focused rare plant surveys in 2016 or 2020.
San Diego gumplant (*Grindelia hallii*)	--/--/ 1B.2/--	Perennial herb found in chaparral, lower montane coniferous forest, meadows and seeps, and valley and foothill grasslands at elevations from 185 to 1,745 meters. Blooming period is May–October.	**Presumed absent.** Habitat within BSA or immediate vicinity is marginal. Typically occurs in higher elevations. Few recent recorded occurrences or populations recorded nearby; however, has not been observed in recent surveys. Not found during focused rare plant surveys in 2016 or 2020.
Orcutt's hazardia (*Hazardia orcuttii*)	Species of concern/ST/ 1B.1/--	Perennial evergreen shrub found in clay soils of maritime chaparral and coastal scrub. Blooming period is August–October. Occurs at 80 to 85 meters in elevation.	**Presumed absent.** Habitat within BSA and immediate vicinity is marginal. Typically occurs in clay soils at higher elevations. Few recent recorded occurrences or populations recorded nearby; however, has not been observed in recent surveys. Not found during focused rare plant surveys in 2016 or 2020.
Sessileflower false goldenaster (*Heterotheca sessiliflora* ssp. *sessiliflora*)	--/--/ 1B.1/--	Perennial herb found in coastal chaparral, coastal dunes, and coastal scrub at elevations up to 1,225 meters. Blooming period is March–December.	**Present.** Suitable habitat exists within the BSA and immediate vicinity. Approximately nine individuals were found during focused rare plant surveys in 2020.

Table 3-4: Potential and Observed Special-Status Plant Species Occurring Within the BSA

Species	Status[1] Federal/State/ CRPR/City	Habitat Requirements	Potential to Occur
Vernal barley (*Hordeum intercedens*)	--/--/ 3.2/--	Annual herb found in coastal dunes, coastal scrub, valley and foothill grassland (saline flats and depressions) and vernal pools. Occurs from 5–1,000 meters in elevation; blooming period is March–June.	**Presumed absent.** Suitable habitat is generally not present within the BSA or immediate vicinity. Habitat within BSA or immediate vicinity is marginal. Not found during focused rare plant surveys in 2016 or 2020.
Ramona horkelia (*Horkelia truncata*)	--/--/ 1B.3/--	Found in chaparral and cismontane woodland. Habitats in California include mixed chaparral, vernal streams, and disturbed areas near roads. Clay soils at elevations of 400 to 1,300 meters.	**Presumed absent.** Suitable habitat and soils are not found within the BSA or immediate vicinity. Typically occurs in higher elevations. Not found during focused rare plant surveys in 2016 or 2020.
Decumbent goldenbush (*Isocoma menziesii* var. *decumbens*)	--/--/ 1B.2/--	Perennial shrub that occurs in chaparral and coastal scrub; sandy soils (often within disturbed areas). Blooming period is April–November and occurs at 10 to 135 meters in elevation.	**Low.** Suitable habitat is present within the BSA and immediate vicinity. Species is known to occur near the BSA in recent years. However, this species was not found during focused rare plant surveys in 2016 or 2020.
San Diego marsh-elder (*Iva hayesiana*)	--/--/ 2B.2/--	Perennial herb found in marshes, swamps, and playas. Blooming period is April–October; occurs at 10 to 500 meters.	**Present.** This species has been documented within the BSA during recent surveys or site visits. Approximately 1,133 individuals in 78 locations were mapped during focused rare plant surveys in 2016 and 2020.
Southwestern spiny rush (*Juncus acutus* ssp. *leopoldii*)	--/--/ 4.2/--	Perennial rhizomatous herb found in coastal dunes (mesic), meadows and seeps (alkaline seeps), and marshes and swamps (coastal salt). Occurs from 3 to 900 meters in elevation; blooming period is March–June.	**Present.** This species has been documented within the BSA during recent surveys or site visits. Approximately 604 individuals in 60 locations were mapped during focused rare plant surveys in 2016, 2020 and 2021.
Southern California black walnut (*Juglans californica*)	--/--/ 4.2/--	Perennial deciduous tree found in chaparral, cismontane woodland, coastal scrub and riparian woodland. Occurs from 50-900 meters in elevation; blooming period is March–August.	**Present.** One individual was documented within the BSA during 2022 surveys.

Table 3-4: Potential and Observed Special-Status Plant Species Occurring Within the BSA

Species	Status[1] Federal/State/ CRPR/City	Habitat Requirements	Potential to Occur
Coulter's goldfields (*Lasthenia glabrata* ssp. *coulteri*)	--/--/ 1B.1/--	Found in wetland habitats. Microhabitats include playas and vernal pools at elevations up to 1,220 meters. Blooming period is February–June.	**Low.** Suitable habitat is present within the BSA or immediate vicinity. Species is known to occur near the BSA in recent years. Not found during focused rare plant surveys in 2016 or 2020.
Sea dahlia *Leptosyne maritima*	--/--/ 2B.2/--	Perennial, yellow-flowering herb found along the coastal strand on sea bluffs and in coastal sage scrub habitats at elevations up to 50 meters.	**Present.** In 2020, approximately 514 sea dahlia individuals were found in 20 locations in coastal sage scrub along the western and northern portions of the BSA.
California boxthorn (*Lycium californicum*)	--/--/ 4.2/--	Perennial shrub found in coastal bluff scrub and coastal scrub at 5 to 150 meters in elevation. Blooming period is December–August.	**Present.** Habitat exists within the BSA or immediate vicinity, but few recent recorded occurrences or populations recorded nearby. One individual was found in scrub oak chaparral during the focused rare plant surveys in 2020.
Felt-leaved monardella (*Monardella hypoleuca* ssp. *lanata*)	--/--/ 1B.2/Covered	Found in chaparral and cismontane woodlands. Occurs in understory in mixed chaparral, chamise chaparral, and southern oak woodland; sandy soil at elevations of 300 to 1,575 meters.	**Presumed absent.** Suitable habitat is not found within the BSA or immediate vicinity. Typically occurs in higher elevations. Not found during focused rare plant surveys in 2016 or 2020.
Willowy monardella (*Monardella viminea*)	FE/SE/ 1B.1/Covered	Perennial herb found in rocky, sandy washes in coastal hills of San Diego between Poway and the Mexican border area. Blooming period is June–August; occurs at 50 to 225 meters.	**Presumed absent.** Suitable habitat is not found within the BSA or immediate vicinity. Not found during focused rare plant surveys in 2016 or 2020.
Spreading navarretia (*Navarretia fossalis*)	FT/--/ 1B.1/Covered	Annual herb associated with vernal pools, chenopod scrub, marshes, swamps and playas from 30 to 655 meters. Blooms April–June.	**Presumed absent.** Suitable habitat is generally not found within the BSA or immediate vicinity. Not found during focused rare plant surveys in 2016 or 2020.
Prostrate vernal pool navarretia (*Navarretia prostrata*)	--/--/ 1B.2/Covered	Annual herb associated with coastal scrub, valley and foothill grassland, vernal pools from 15 to 1,210 meters in elevation. Blooming period is April–July.	**Presumed absent.** Suitable habitat is generally not found within the BSA or immediate vicinity. Not found during focused rare plant surveys in 2016 or 2020.

Table 3-4: Potential and Observed Special-Status Plant Species Occurring Within the BSA

Species	Status[1] Federal/State/ CRPR/City	Habitat Requirements	Potential to Occur
Coast woolly-heads (*Nemacaulis denudata* var.*denudata*)	--/--/ 1B.2/--	Annual herb found in coastal dunes. Blooming period lasts April–September and occurs up to 100 meters in elevation.	**Presumed absent.** Suitable habitat is not found within the BSA or immediate vicinity. Not found during focused rare plant surveys in 2016 or 2020.
California Orcutt grass (*Orcuttia californica*)	FE/SE/ 1B.1/Covered	Annual herb associated with vernal pools at elevations of 15 to 660 meters. Blooms April–August.	**Presumed absent.** Suitable habitat is not found within the BSA or immediate vicinity. Not found during focused rare plant surveys in 29016 or 2020.
Short-lobed broomrape *Orobanche parishii* ssp. *brachyloba*	--/--/ 4.2/--	Low-growing perennial herb found on sandy soil near the ocean, generally parasitic on coast goldenbush at elevations up to 300 meters. Blooming period is May to August.	**Presumed Absent.** Suitable habitat is found on and in the vicinity of the BSA. No historical records are known from the BSA, but it is known within TPSNR along the Guy Fleming Trail. However, this species was not found during focused rare plant surveys in 2016 or 2020.
Golden-rayed pentachaeta (*Pentachaeta aurea* ssp. *aurea*)	--/--/ 4.2/--	Annual herb found in chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, riparian woodland, and valley and foothill grassland. Blooming period is March – July; occurs at 80 to 1,850 meters.	**Presumed absent.** Habitat within BSA or immediate vicinity is marginal. Typically found at higher elevations. Few recent recorded occurrences or populations recorded nearby. Not found during focused rare plant surveys in 2016 or 2020.
South Coast branching phacelia (*Phacelia ramosissima* var. *austrolitoralis*)	--/--/ 3.2/--	Perennial herb found in chaparral, coastal dunes, coastal scrub, and coastal saltwater marshes and swamps; sandy, sometimes rocky, soil. Blooming period is March–August and grows at elevations of 5 to 300 meters.	**Present.** Suitable habitat is present within BSA and immediate vicinity. Known recent recorded occurrences or populations recorded nearby. Approximately 787 individuals in 96 locations were mapped during focused rare plant surveys in 2020.
Brand's star phacelia (*Phacelia stellaris*)	Species of concern/--/ 1B.1/--	Annual herb found in coastal dunes and coastal scrub at elevations up to 400 meters. Blooming period is March–June.	**Low.** Habitat within BSA or immediate vicinity is marginal. Few recent recorded occurrences or populations recorded nearby; however, has not been observed in recent surveys. Not found during focused rare plant surveys in 2016 or 2020.

Table 3-4: Potential and Observed Special-Status Plant Species Occurring Within the BSA

Species	Status[1] Federal/State/ CRPR/City	Habitat Requirements	Potential to Occur
Torrey pine (*Pinus torreyana* ssp. *torreyana*)	--/--/ 1B.2/Covered	Perennial evergreen tree found in closed-cone coniferous forests and chaparral; in sandstone soils from 75 to 160 meters in elevation.	**Present.** Documented within the BSA during recent surveys and site visits. A total of 24 trees were mapped during focused rare plant surveys and/or follow-up surveys in 2020 and 2021.
San Diego mesa mint (*Pogogyne abramsii*)	FE/SE/ 1B.1/Covered	Annual herb found in vernal pool habitats at elevations from 90 to 250 meters.	**Presumed absent.** Suitable habitat is not found within the BSA or immediate vicinity. Not found during focused rare plant surveys in 2016 or 2020.
Otay Mesa mint (*Pogogyne nudiuscula*)	FE/SE/ 1B.1/Covered	Annual herb found in vernal pool habitats at elevations from 90 to 250 meters. Blooming period is May–July.	**Presumed absent.** Suitable habitat is not found within the BSA or immediate vicinity. Not found during focused rare plant surveys in 2016 or 2020.
Nuttall's scrub oak (*Quercus dumosa*)	--/--/ 1B.1/--	Perennial evergreen shrub found in close-cone coniferous forest, chaparral, and coastal sage scrub; sandy, clay loam soil. Blooming period is February–August and occurs at 15 to 400 meters in elevation.	**Present.** Suitable habitat is present and has been documented within the BSA during recent surveys and site visits. Approximately 113 individuals were mapped during the focused rare plant surveys in 2020.
Ashy spike-moss (*Selaginella cinerascens*)	--/--/ 4.1/--	Perennial rhizomatous herb in chaparral and coastal scrub. Found at elevations of 20 to 640 meters.	**Low.** Suitable habitat is generally not present within the BSA or immediate vicinity, though the species is known to occur in TPNSR. Not found during focused rare plant surveys in 2020.
Chaparral ragwort (*Senecio aphanactis*)	--/--/ 2B.2/--	Annual herb found in chaparral, cismontane woodland, and coastal scrub; soil is sometimes alkaline. Blooming period is January–April and occurs at 15 to 800 meters in elevation.	**Low.** Habitat within BSA or immediate vicinity is marginal. Few recent recorded occurrences or populations recorded nearby; however, has not been observed in recent surveys. Not found during focused rare plant surveys in 2016 or 2020.

Table 3-4: Potential and Observed Special-Status Plant Species Occurring Within the BSA

Species	Status[1] Federal/State/ CRPR/City	Habitat Requirements	Potential to Occur
Bottle liverwort (*Sphaerocarpos drewei*)	--/--/ 1B.1/--	Found in chaparral and coastal scrub. Much of suitable habitat lost to urbanization. Found on soil at elevations of 90 to 600 meters.	**Low.** Habitat within BSA or immediate vicinity is marginal. Few recent recorded occurrences or populations recorded nearby; however, has not been observed in recent surveys. Not found during focused rare plant surveys in 2016 or 2020.
Purple stemodia (*Stemodia durantifolia*)	--/--/ 2B.1/--	Perennial herb found in Sonoran Desert scrub. Blooming period is January–December. Occurs at elevations from 180 to 300 meters.	**Presumed absent.** Suitable habitat is not found within the BSA or immediate vicinity. Typically occurs in higher elevations. Not found during focused rare plant surveys in 2016 or 2020.
Oil neststraw (*Stylocline citroleum*)	--/--/ 1B.1/--	Annual herb found in chenopod scrub, coastal scrub, and valley and foothill grassland; in clay soil at elevations from 50 to 400 meters. Blooming period is March–April.	**Low.** Habitat within BSA or immediate vicinity is marginal. Few recent recorded occurrences or populations recorded nearby; however, has not been observed in recent surveys. Not found during focused rare plant surveys in 2016 or 2020.
Estuary seablite (*Suaeda esteroa*)	--/--/ 1B.2/--	Perennial herb found in coastal salt marshes and swamps. Blooming period runs May–January. Occurs at sea level (up to 5 meters in elevation).	**Low.** Documented within the Phase 2 (future phase) area during recent surveys and site visits. Suitable habitat exists in non-degraded salt marsh in the BSA. However, this species was not found in the BSA during focused rare plant surveys in 2020.
Woolly seablite (*Suaeda taxifolia*)	--/--/ 4.2/--	Perennial evergreen shrub. Found in coastal bluff scrub, coastal dunes, and marshes and swamps (margins of coastal salt). Blooming period is January–December. Occurs at 0 to 50 meters in elevation.	**Present.** Documented within the BSA during recent surveys and site visits. Approximately 60 individuals were mapped in one patch of coastal salt marsh at the northern end of the BSA during the focused rare plant surveys in 2020.

[1] Description of status codes:
FE = Listed as federally endangered under the FESA
FT = Listed as federally threatened under the FESA
ST= Listed as state threatened under the CESA
SE = Listed as state endangered under the CESA
CRPR = California Rare Plant Rank (CNPS, 2016)

CRPR 1B.1 = Seriously threatened in California and elsewhere
CRPR 1B.2 = Fairly threatened in California and elsewhere
CRPR 1B.3 = Not very threatened in California and elsewhere
CRPR 2B.1 = Seriously threatened in California, but more common elsewhere
CRPR 2B.2 = Fairly threatened in California, but more common elsewhere
CRPR 3 = Plant about which more information is needed
CRPR 3.2 = Fairly threatened in California, placed on review-list due to limited information available
CRPR 4.1 = Seriously threatened in California, placed on a watch-list due to limited distribution throughout its range
CRPR 4.2 = Fairly threatened in California, placed on a watch-list due to limited distribution throughout its range
RCovered = MSCP covered species

Total Number of Plant Species Found and Special-Status Plant Species Found Present or with a Moderate Potential to Occur

A total of 343 plant species belonging to 90 families were documented within the BSA; 131 were non-native and/or invasive (see Appendix A). Fourteen special-status plant species were documented, including:

- San Diego sagewort (*Artemisia palmeri*; CRPR 4.2)
- Del Mar mesa sand aster (*Corethrogyne filaginifolia* var. *linifolia*; CRPR 1B.1, MSCP-covered)
- Coast wallflower (*Erysimum ammophilum*; CRPR 1B.2, MSCP-covered)
- San Diego barrel cactus (*Ferocactus viridescens*; CRPR 2B.1, MSCP-covered)
- Sessileflower false goldenaster (*Heterotheca sessiliflora* ssp. *sessiliflora*; CRPR 1B.1)
- San Diego marsh-elder (*Iva hayesiana*; CRPR 2B.2)
- Southern California black walnut (*Juglans californica*; CRPR 4.2)
- Southwestern spiny rush (*Juncus acutus* ssp. *leopoldii*; CRPR 4.2)
- Sea dahlia (*Leptosyne maritima*; CRPR 2B.2)
- California boxthorn (*Lycium californicum*; CRPR 4.2)
- South Coast branching phacelia (*Phacelia ramosissima* var. *austrolitoralis*; CRPR 3.2)
- Torrey pine (*Pinus torreyana*; CRPR 1B.1, MSCP-covered)
- Nuttall's scrub oak (*Quercus dumosa*; CRPR 1B.1)
- Woolly seablite (*Suaeda taxifolia*; CRPR 4.2)

Listed or narrow endemic plant species have not been observed within the BSA, nor do any species under these considerations have a moderate or high potential to occur in the BSA. Each of these species, along with their relative abundance, habitat associations, general locations, potentials for Project-related impacts and any species-specific avoidance, minimization and/or mitigation measures are described in the following sub-sections. Figure 3-8 presents the special-status plant survey results.

San Diego Sagewort

San Diego sagewort (*Artemisia palmeri*) is a perennial deciduous herb in the Asteraceae family. It is found in chaparral, coastal scrub, riparian forest, riparian scrub, and riparian woodland within sandy, mesic soils. San Diego sagewort occurs at elevations of 15 to 915 meters and blooms from approximately February to September. It is present in small pockets within the riparian and sage scrub communities of the BSA and was

detected during 2016 general reconnaissance surveys (Smith pers. com. 2016). In 2020, San Diego sagewort was found from the southern end of the BSA to the northern extent. Approximately 374 individuals were documented in 98 locations of moist areas within riparian and coastal sage scrub habitats. Locations ranged from single individuals to small patches of several to dozens of individuals (Blackhawk 2020a).

Del Mar Mesa Sand Aster

Del Mar Mesa sand aster (*Corethrogyne filaginifolia* var. *linifolia*) is a perennial herb in the Asteraceae family. Del Mar Mesa sand aster is found in coastal bluff scrub, openings in maritime chaparral, and coastal scrub at elevations from 15 to 150 meters. The blooming period is May to September. Del Mar Mesa sand aster was found present in suitable habitat within the coastal scrub communities of the BSA. Del Mar mesa sand aster was mapped in 45 locations toward the northern and western ends of the BSA. Approximately 1,963 individuals were mapped in openings of coastal sage scrub and semi-disturbed areas within coastal sage scrub habitat, often in proximity to one another as dense or semi-dense patches (Blackhawk 2020a).

Coast Wallflower

Coast wallflower (*Erysimum ammophilum*) is a biennial or short-lived perennial herb endemic to California. It can vary in size from a few centimeters to just over a meter in height. This species occurs in coastal strand communities and is primarily found along coastal dunes, though it is also found on sandy soils in coastal sage scrub near the coast. The blooming period is February to June, and it occurs at elevations up to 50 meters. Coast wallflower was found in in association with coastal sage scrub in 19 locations toward the western and northern ends of the BSA, occurring as single to few individuals per mapped location, accounting for approximately 204 total plants (Blackhawk, 2020a). (Note that the current occurrence of this species in the BSA may be of an undescribed species or taxon, but in lieu of scientific consensus as of the timing of this BTR, this BTR defers to coast wallflower as the currently accepted nomenclature.)

San Diego Barrel Cactus

San Diego barrel cactus (*Ferocactus viridescens*) is a perennial succulent in the Cactaceae family. San Diego barrel cactus is found in chaparral, coastal scrub, valley and foothill grasslands, and vernal pools. Blooming period is May to June, and it can be found at 3 to 450 meters in elevation. San Diego barrel cactus was found present in three locations of coastal sage scrub along the western and northern ends of the BSA, occurring as one to few individuals per location, accounting for nine total plants (Blackhawk 2020a).

Sessileflower False Goldenaster

Sessileflower false goldenaster (*Heterotheca sessiliflora* ssp. *sessiliflora*) is a perennial herb found in coastal chaparral, coastal dunes, and coastal scrub at elevations up to 1,225 meters. Its blooming period is March to December. Sessileflower false goldenaster was documented in two locations in the northern and western portions of the BSA in semi-disturbed areas and openings of coastal sage scrub, accounting for approximately nine individuals (Blackhawk, 2020a).

Southwestern Spiny Rush

Southwestern spiny rush (*Juncus acutus* ssp. *leopoldii)* is a perennial rhizomatous herb in the Juncaceae family. Southwestern spiny rush is found in coastal dunes, meadows and alkaline seeps, and coastal salt marshes and swamps. The blooming period is March to June, and it occurs at 3 to 900 meters in elevation. Southwestern spiny rush is present in pockets throughout the marsh communities of the BSA and was detected during 2016 general reconnaissance surveys and rare plant surveys (ESA, 2016a). In 2020, southwestern spiny rush was found in 60 locations in marshland habitats within the northern and central portions of the BSA, with most located toward the northern end of the BSA. Mapped locations ranged from one to many individuals, accounting for approximately 604 individuals (Blackhawk, 2020a).

San Diego Marsh-Elder

San Diego marsh-elder (*Iva hayesiana*) is a perennial herb in the Asteraceae family. San Diego marsh-elder is found in marshes, swamps, and playas. Blooming period is April to October and it occurs at 10 to 500 meters. San Diego marsh-elder has a dominant presence in the alkali seep communities within the BSA (ESA, 2016a). In 2020, San Diego marsh-elder was found in 78 locations in marshland habitats within the central portion of the BSA. Locations ranged from one to many individuals, accounting for approximately 1,133 individuals collectively (Blackhawk, 2020a).

Sea Dahlia

Sea dahlia (*Leptosyne maritima*) is a perennial herb with very fleshy leaves, bold, yellow flowers, and hollow fragile stems that grow from a fleshy taproot. This species occurs in coastal sage scrub habitats, typically along coastal bluffs or dunes along the coastal strand on sea bluffs. Its blooming period is February to June, and it occurs at elevations of up to 50 meters. In 2020, sea dahlia was found in 20 locations in coastal sage scrub along the western and northern portions of the BSA, collectively amounting to approximately 514 individuals (Blackhawk, 2020a).

California Boxthorn

California boxthorn (*Lycium californicum*) is a perennial shrub found in coastal bluff scrub and coastal scrub at 5 to 150 meters in elevation. Its blooming period is December through August. California boxthorn is a slightly thorny shrub with thick, fleshy, bulbous green leaves and bell-shaped white flowers with a purple tinge. In dry summer conditions, it can lose all its leaves, but given a consistent water supply, it can remain evergreen. In 2020, one California boxthorn was found in coastal sage scrub toward the western end of the BSA (Blackhawk, 2020a).

South Coast Branching Phacelia

South Coast branching phacelia (*Phacelia ramosissima* var. *austrolitoralis*) is a perennial herb in the Boraginaceae family. South Coast branching phacelia is found in chaparral, coastal dunes, coastal scrub, and coastal saltwater marshes and swamps in sandy, sometimes rocky, soil. The blooming period is March to August, and it grows at elevations of 5 to 300 meters. In 2020, South Coast branching phacelia was found in 96 locations toward the northern and western portions of the BSA, occurring as single to several individuals per mapped location. It was found in association with coastal sage scrub, non-native grassland, blue

elderberry stands, and riparian habitats. The collective total within the BSA includes approximately 787 individuals (Blackhawk, 2020a).

Torrey Pine

Torrey pine (*Pinus torreyana* ssp. *torreyana*) is a perennial evergreen tree in the Pinaceae family. It is found in closed-cone coniferous forests and chaparral in sandstone soils up to 160 meters in elevation. A total of 24 Torrey pines were mapped in various habitats mostly along the west-central and northern portions of the BSA during the 2016 general reconnaissance surveys, as well as the 2020 focused rare plant surveys (ESA, 2016a and Blackhawk, 2020a).

Nuttall's Scrub Oak

Nuttall's scrub oak (*Quercus dumosa*) is a perennial evergreen shrub in the Fagaceae family. Nuttall's scrub oak is found in close-cone coniferous forest, chaparral, and coastal sage scrub in sandy and clay loam soil, occurring at elevations between 15 to 400 meters. Nuttall's scrub oak was observed within the Diegan coastal sage scrub communities of the BSA during 2016 general reconnaissance surveys and rare plant surveys (ESA, 2016a). In 2020, Nuttall's scrub oak was found in 27 locations mostly along the western and northern portions of the BSA, occurring as single individuals up to dominant patches of habitat. This species was found in association with scrub oak chaparral, Torrey pine forest, coastal sage scrub and riparian scrub habitats. The collective total onsite includes approximately 113 individuals (Blackhawk, 2020a).

Woolly Seablite

Woolly seablite (*Suaeda taxifolia*) is a perennial herb in the Chenopodiaceae family. Woolly seablite is found in coastal bluff scrub, coastal dunes, and marshes and swamps (margins of coastal salt marshes). The blooming period is from January to December, and it occurs at 0 to 50 meters in elevation. Woolly seablite was observed within the southern coastal salt marsh communities of the BSA during 2016 general reconnaissance surveys and during rare plant surveys (ESA, 2016a). In 2020, woolly seablite was found in one location at the northern end of the BSA, occurring as a patch of approximately 60 individuals in coastal salt marsh (Blackhawk, 2020a).

Southern California Black Walnut

Southern California black walnut (*Juglans californica*) is a perennial deciduous tree in the Juglandaceae family. This species is found in chaparral, cismontane woodland, coastal scrub and riparian woodland. The blooming period is from March to August, and it occurs at 50 to 900 meters in elevation. One southern California black walnut was incidentally observed during the 2022 wildlife surveys in riparian habitat near the confluence of Carroll Canyon and Los Peñasquitos Creeks.

3.7.2 Special-Status Wildlife Potentials for Occurrence

Table 3-5 includes the common and scientific names for each special-status wildlife species that was evaluated, regulatory status (federal, state, local), habitat descriptions, and potential for occurrence within the BSA. A total of 54 wildlife species were evaluated for potential to occur within the BSA. Of the 53 total wildlife species evaluated, 19 special-status wildlife species are present, five have a high potential to occur, six have a moderate potential to occur, 25 have a low potential to occur; these species are discussed in further detail below and in the following pages. Results from completed light-footed Ridgway's rail, Belding's savannah

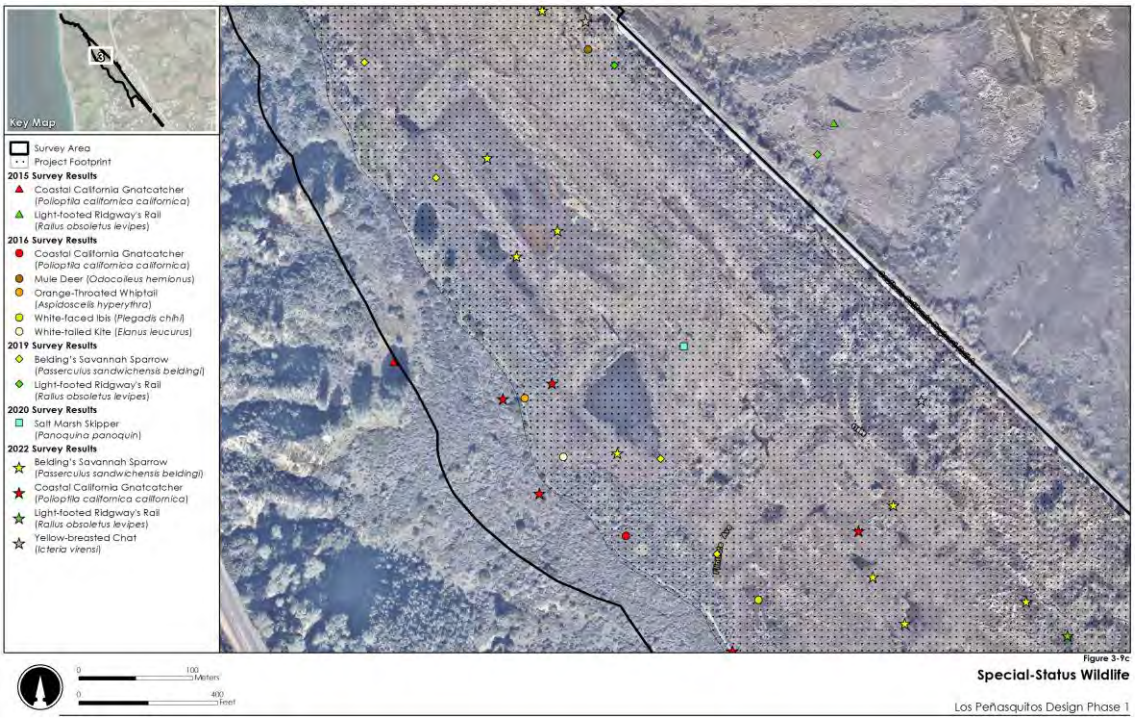
sparrow, coastal California gnatcatcher, least Bell's vireo, and southwestern willow flycatcher surveys have been incorporated into these findings; their survey areas are displayed in Figure 3-9. Detected special-status species are displayed in Figure 3-9, relative to the location of the Project footprint (i.e., limits of permanent and temporary disturbance).

Figure 3-9: Special Status Wildlife Species in the BSA

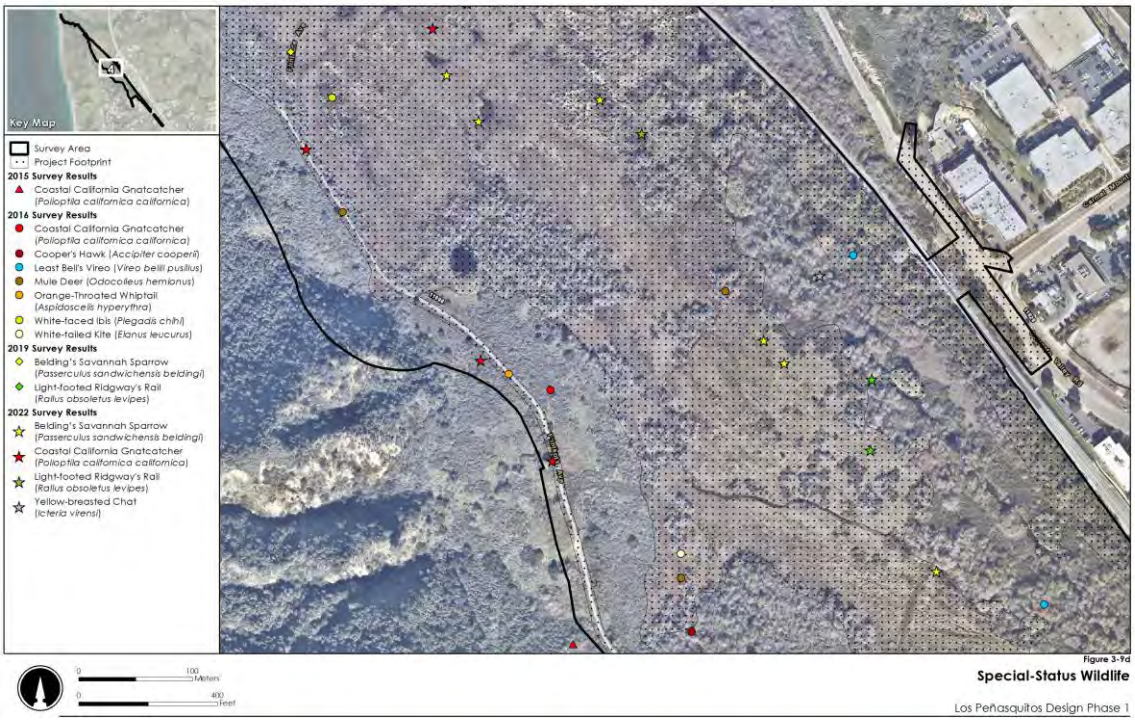
3-9a: Special Status Wildlife Species Area 1

3-9b: Special Status Wildlife Species Area 2

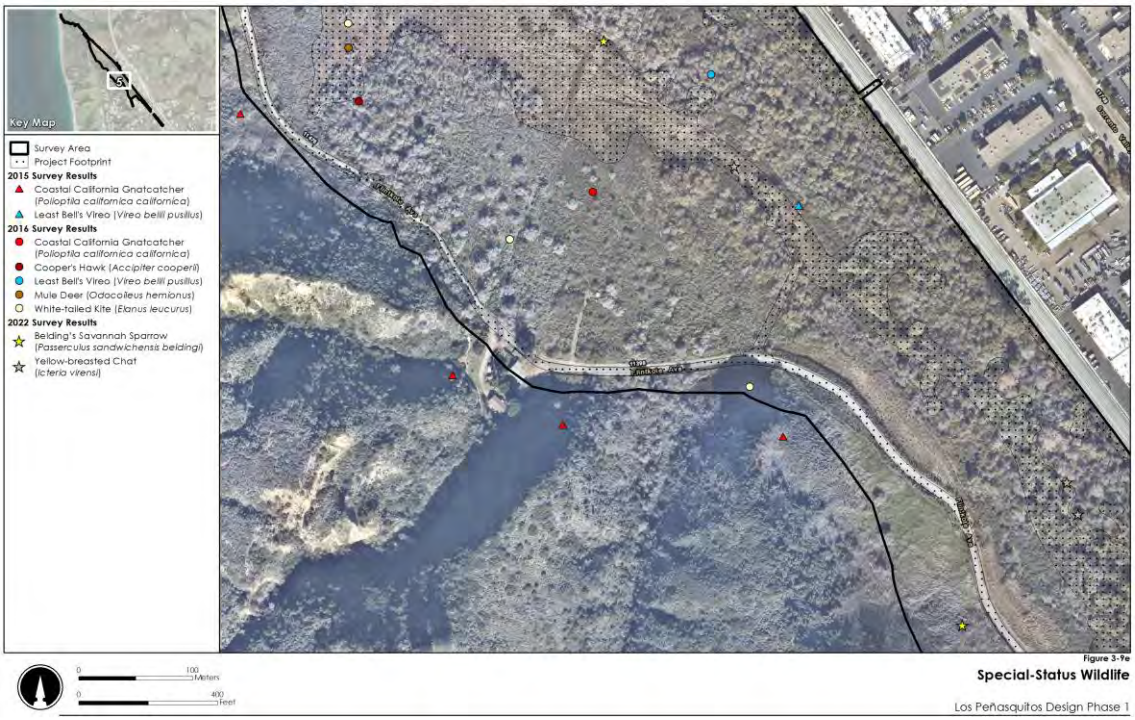
3-9c: Special Status Wildlife Species Area 3



3-9d: Special Status Wildlife Species Area 4



3-9e: Special Status Wildlife Species Area 5



3-9f: Special Status Wildlife Species Area 6

3-9g: Special Status Wildlife Species Area 7

3-9h: Special Status Wildlife Species Area 8

Table 3-5: Potential and Observed Special-Status Wildlife Species Occurring Within the BSA

Species	Status[1] Federal/State/MSCP	Habitat Requirements	Potential to Occur
Insects			
Monarch butterfly (*Danaus plexippus*)	--/--/ --	Overwinters along the coast of California. Roosts in woodlands or groves with nectar and water sources nearby.	**Present (nectaring or migrating), Unlikely (overwintering).** Overwintering habitat within BSA and the immediate vicinity is suitable but not ideal, and this species has not been recently documented overwintering in the BSA. Nectar sources are abundant, and nectaring or migrating individuals have a high potential to occur onsite. However, breeding is not anticipated, as no milkweed species are known to occur in the BSA.

Table 3-5: Potential and Observed Special-Status Wildlife Species Occurring Within the BSA

Species	Status[1] Federal/State/MSCP	Habitat Requirements	Potential to Occur
Saltmarsh (=wandering) skipper (*Panoquina errans*)	--/--/ Covered	Found in salt marshes from southern California to west-central Mexico. Its larvae feed only on saltgrass (*Distichlis spicata*).	**Present.** This species was observed onsite in 2020 in association with saltgrass in marshland habitats.
Crotch's bumble bee *(Bombus crotchii)*	--/PSE/None	Open grassland and scrub communities supporting suitable floral resources.	**Moderate.** This species has been collected from Torrey Pines State Park (1983) and may forage or nest within upland communities within the BSA or the immediate vicinity.
Crustaceans			
San Diego fairy shrimp (Branchinecta sandiegonensis)	FE/--/ Covered	Known to occur in areas of swales/earth slump basins in grassland, chaparral, and coastal sage scrub. Inhabits seasonally wet pools filled by winter/spring rains. Hatches in warm water later in the season.	**Low.** Suitable vernal pool habitat is not present within the BSA or the immediate vicinity.
Riverside fairy shrimp (Streptocephalus woottoni)	FE/--/ Covered	Known to occur in areas of swales/earth slump basins in grassland, chaparral, and coastal sage scrub. Inhabits seasonally wet pools filled by winter/spring rains. Hatches in warm water later in the season.	**Low.** Suitable vernal pool habitat is not present within the BSA or the immediate vicinity.
Amphibians			
Arroyo toad (*Anaxyrus californicus*)	FE/SSC/ Covered	Requires low gradient streams with exposed sandy stream-sides and stable terraces for burrowing, with scattered vegetation for shelter, and quiet pools free of predatory fishes with sandy or gravel bottoms for breeding.	**Low.** Suitable channels for breeding do not exist in the BSA.
Western spadefoot (*Spea hammondii*)	--/SSC/ --	Prefers open areas with sandy or gravelly soils, in a variety of habitats including mixed woodlands, grasslands, chaparral, sandy washes, lowlands, river floodplains, alluvial fans, playas, alkali flats, foothills, and mountains. Rain pools or shallow temporary pools, which do not contain bullfrogs, fish, or crayfish are necessary for breeding. Vernal	**Low.** Suitable vernal pool habitat is not present within the BSA or the immediate vicinity.

Table 3-5: Potential and Observed Special-Status Wildlife Species Occurring Within the BSA

Species	Status[1] Federal/State/MSCP	Habitat Requirements	Potential to Occur
		pools are essential for breeding and egg-laying.	
Reptiles			
Orange-throated whiptail (*Aspidoscelis hyperythra*)	--/--/ Covered	Species requires intact habitat within chaparral, cismontane woodland, and coastal scrub plant communities. Prefers washes and other sandy areas with patches of brush and rocks. Perennial plants necessary for its major food—termites.	**Present.** Documented within the BSA during recent surveys or site visits. Habitat preference onsite includes coastal sage scrub.
Coastal whiptail (*Aspidoscelis tigris stejnegeri*)	--/SSC/ --	Prefers open scrub, chaparral, and woodland habitats, with open areas for basking and native ants as a prey base.	**High.** Suitable habitat is found in many upland areas within the Survey Area, and this species is known to occur in the Project vicinity.
Red-diamond rattlesnake (*Crotalus ruber*)	--/SSC/ --	Known to occur in chaparral, Mojavean desert scrub, and Sonoran Desert scrub communities. Occurs in rocky areas and dense vegetation. Needs rodent burrows, cracks in rocks, or surface cover objects.	**Present.** Documented within the BSA during recent surveys or site visits. Habitat preference onsite includes coastal sage scrub.
Western pond turtle (*Emys marmorata*)	--/SSC/ Covered	Known to occur in slow-moving permanent or intermittent streams, ponds, small lakes, reservoirs with emergent basking sites; adjacent uplands used during winter.	**Low.** Limited suitable habitat is present within the freshwater creeks in the BSA and its immediate vicinity.
Coast horned lizard (*Phrynosoma blainvillii*)	--/SSC/ Covered	Known to occur in sandy washes within chaparral or coastal scrub habitat. Requires loose soil for burial and abundant supply of harvester ants.	**Low.** Limited suitable habitat is present in open areas of coastal sage scrub within the BSA and its immediate vicinity.
Coast patch-nosed snake (*Salvadora hexalepis virgultea*)	--/SSC/ --	Occurs in coastal scrub in coastal Southern California. Requires small mammal burrows for refuge and overwintering sites.	**High.** Suitable habitat is present within the coastal sage scrub of the BSA and its immediate vicinity.
Two-striped garter snake (*Thamnophis hammondii*)	--/SSC/ --	Habitat includes marsh and swamp, riparian scrub, riparian woodland, and wetland. Highly aquatic, found in or near permanent fresh water. Often along streams with rocky beds and riparian growth.	**High.** Suitable habitat is present within the freshwater creeks in the BSA and its immediate vicinity.

Table 3-5: Potential and Observed Special-Status Wildlife Species Occurring Within the BSA

Species	Status[1] Federal/State/MSCP	Habitat Requirements	Potential to Occur
Birds			
Cooper's hawk (*Accipiter cooperii*)	--/--/ Covered	Found in riparian areas, and open woodlands, chiefly of open, interrupted, or marginal type. Nests in riparian growths of deciduous trees and live oak woodlands.	**Present.** Documented within the BSA during recent surveys or site visits. Suitable nesting and foraging habitats exist over most of the BSA.
Tri-colored blackbird (*Agelaius tricolor*)	BCC/ST, SSC/ Covered	Cattail and bulrush thickets, open water. Requires open water, protected nesting substrate, and foraging area. Highly colonial species, most numerous in Central Valley and vicinity.	**Low.** Very limited habitat exists within the BSA and the immediate vicinity. Few recent recorded occurrences/populations recorded nearby. Wintering or migrating flocks may occur irruptively.
Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*)	--/--/ Covered	Known to frequent relatively steep, often rocky hillsides with grass and forb species. Resides in Southern California coastal sage scrub and mixed chaparral.	**High.** Suitable habitat is present within open areas of coastal sage scrub in the BSA or immediate vicinity.
Grasshopper sparrow (*Ammodramus savannarum*)	--/SSC/ --	Found in perennial grasslands with little to no shrub cover.	**Low.** Suitable habitat is not present within the BSA or immediate vicinity.
Burrowing owl (*Athene cunicularia*)	BCC/SSC/ Covered	Known to occur within open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. A subterranean nester dependent upon burrowing mammals, particularly the California ground squirrel.	**Low.** Suitable habitat is not present within the BSA or immediate vicinity.
Coastal cactus wren (*Campylorhynchus brunneicapillus sandiegensis*)	BCC/SSC/ Covered	Known to occur in coastal scrub habitats; requires stands of prickly pear or cholla cactus for nesting and roosting.	**Low.** Suitable nesting and foraging habitat is not present within the BSA or immediate vicinity.
Western snowy plover (*Charadrius alexandrinus nivosus*)	FT, BCC/SSC/ Covered	Will nest beside or near tidal waters, and includes all nesting colonies on the mainland coast, peninsulas, off-shore islands, adjacent bays, and estuaries.	**Low.** Suitable nesting and foraging habitat is not present within the BSA or immediate vicinity.
Northern harrier (*Circus hudsonius*)	--/SSC/ Covered	Coastal salt and freshwater marsh. Nests and forages in grasslands, from salt grass in desert sink to mountain cienagas. Nests on ground in shrubby	**Present.** Documented within the BSA during recent surveys or site visits. Suitable nesting habitat is present, though

Table 3-5: Potential and Observed Special-Status Wildlife Species Occurring Within the BSA

Species	Status[1] Federal/State/MSCP	Habitat Requirements	Potential to Occur
		vegetation, usually at marsh edge; nest built of a large mound of sticks in wet areas.	recent, onsite nesting has not been documented.
Clark's marsh wren (*Cistothorus palustris clarkae*)	--/SSC/ --	Found in freshwater or brackish marsh that is dominated by bulrush or cattails.	**Present.** Documented as a permanent resident within dense emergent-dominant marshes of the BSA during recent surveys or site visits.
Reddish egret (*Egretta rufescens*)	--/--/ Covered	Found in marshes, shallow bays, and lagoons. Breeds in tropical swamps.	**Low.** Habitat onsite or within the immediate vicinity is suitable but not ideal, and this species is not common to the region.
White-tailed kite (*Elanus leucurus*)	--/FP/ --	Rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland. Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	**Present.** Documented within riparian scrub and forest of the BSA during recent surveys or site visits. Suitable nesting habitat is present, though recent, onsite nesting has not been documented.
American peregrine falcon (*Falco peregrinus anatum*)	BCC/FP/ Covered	Grassland, scrub, and forest habitats from sea level to 4,000 meters in elevation; cliffs or tall buildings, often within 1 mile of open water.	**Present.** Species was observed and suitable foraging habitat is present within the BSA and the immediate vicinity. Species is known to occur as a foraging species in TPNSR west of Torrey Pines Road. However, no suitable nesting habitat is present.
Yellow-breasted chat (*Icteria virens*)	--/SSC/ --	This migratory species utilizes riparian woodlands, riparian scrub and tall, dense vegetation adjacent to riparian and wetland systems for nesting and foraging purposes.	**Present.** Documented commonly during the nesting season within riparian scrub and forest of the BSA during recent surveys or site visits.
California black rail (*Laterallus jamaicensis coturniculus*)	BCC/ST, FP/ --	Known to occur in brackish and freshwater marshes. Inhabits riparian thickets of willow and other brushy tangles near watercourses. Needs water depths of about 1 inch that do not fluctuate during the year and dense vegetation for nesting habitat.	**Unlikely.** This species is nearly extirpated locally and has not been known to occur in the area in recent years.

Table 3-5: Potential and Observed Special-Status Wildlife Species Occurring Within the BSA

Species	Status[1] Federal/State/MSCP	Habitat Requirements	Potential to Occur
Long-billed curlew (*Numenius americanus*)	BCC/--/ Covered	Outside of the breeding season, found in wetlands, tidal estuaries, mudflats, and flooded fields less than 6 inches deep, and beaches. Does not breed in southern California.	**Moderate.** Suitable habitat exists as marshland and open water habitat in the BSA, where this species has a moderate potential to occur as a wintering or migrating species. However, it is presumed absent as a nesting species.
Belding's savannah sparrow (*Passerculus sandwichensis beldingi*)	--/SE/ Covered	Inhabits coastal salt marshes. Nests in pickleweed on and about margins of tidal flats.	**Present.** Documented as a permanent resident within non-degraded salt marsh in the BSA during recent surveys or site visits. Point locations in Carroll Canyon Creek were an incidental observation on one visit only.
California brown pelican (*Pelecanus occidentalis californicus*)	--/FP/ Covered	Roosts on beaches and structures along the coast and in bays and harbors. Forages over shallow waters and sheltered bays. Colonial nester on the ground or cliffs on offshore islands or in low trees.	**Present.** Suitable nesting habitat is not present in the BSA, but this species has been documented flying near the BSA along the coastline and likely rests on occasion near the tidal inlet.
White-faced ibis (*Plegadis chihi*)	--/--/ Covered	Prefers marsh habitat but can frequently be observed foraging in flooded agricultural fields.	**Present.** Documented within the BSA during recent surveys or site visits. Limited suitable nesting habitat may be present, though this species is not known to nest within the BSA.
Coastal California gnatcatcher (*Polioptila californica californica*)	FT/SSC/ Covered	Species is an obligate, permanent resident of coastal sage scrub in southern California and northwestern Mexico. Prefers low, coastal sage scrub in semi-arid washes, mesas and slopes.	**Present.** Documented as a permanent resident within coastal sage scrub and riparian habitats in the BSA during recent surveys or site visits.
Light-footed Ridgway's rail (*Rallus obsoletus levipes*)	FE/SE, FP/ Covered	Found in salt marshes traversed by tidal sloughs, where cordgrass and pickleweed are the dominant vegetation. Requires dense growth of either pickleweed or cordgrass for nesting or escape cover; feeds on mollusks and crustaceans.	**Present.** Documented as a permanent resident within the densely vegetated marshes of the BSA during recent surveys or site visits. Focused surveys in 2022 indicate 3 individuals and 1 nesting pair in the central and northern portions of the BSA.

Table 3-5: Potential and Observed Special-Status Wildlife Species Occurring Within the BSA

Species	Status[1] Federal/State/MSCP	Habitat Requirements	Potential to Occur
Black skimmer (*Rynchops niger*)	BCC/SSC/ --	Found on open, sandy beaches and shorelines of sheltered bays, lagoons and inlets, typically associated with coastal saltwater and brackish habitats; feeds on small fish, mainly at night.	**Present.** One individual was documented resting near the tidal inlet in 2021. No nesting colonies are known within or adjacent to the BSA and nesting onsite is unlikely.
Yellow warbler (*Setophaga petechia*)	BCC/SSC/ --	Found in riparian (often willow) forests along streams and wetlands.	**Present.** Documented commonly during the nesting season within riparian scrub and forest of the BSA during recent surveys or site visits.
Western bluebird (*Sialia mexicana*)	--/--/ Covered	Found in areas of scattered trees, open conifer forests, and farms. Breeds in semi-open areas including pine woods, oak woodlands, streamside groves, ranch country, occasionally in pinyon-juniper woods, but avoids hot dry regions. Winters in many kinds of open or semi-open habitats, especially in pinyon-juniper, also in desert, farmland, and others.	**Moderate.** Suitable habitat exists along degraded salt marsh, non-native grassland and open sage scrub habitats, and suitable nesting cavities can be found on dead or dying trees within the BSA. A pair was documented during the general peak of the nesting season on the golf course near TPNSR in 2017 and 2018, indicating that they were likely nesting nearby.
California least tern (*Sternula antillarum browni*)	FE/SE, SSC/ Covered	Known to occur in alkali playas and coastal dune and beach habitats. Colonial breeder on bare or sparsely vegetated, flat substrates: sand beaches, alkali flats, landfills, or paved areas.	**Low (nesting), High (foraging).** Suitable nesting habitat is not present within the BSA or immediate vicinity, but suitable foraging opportunities are present in the open water channel and tidal inlet at the northern end of the BSA.
Elegant tern (*Thalasseus elegans*)	--/--/ Covered	Nests colonially from southern California south through west-central Mexico on islands, beaches, or barren substrates. Typically forages close to shore over open ocean waters.	**Present.** Several individuals were documented resting near the tidal inlet in 2021. Suitable nesting and foraging habitat is not present in the BSA, though this species has the potential to occur as a flyover species and/or resting near the tidal inlet.
Least Bell's vireo (*Vireo bellii pusillus*)	FE/SE/ Covered	Known to occur in riparian forest, scrub, and woodland habitats.	**Present.** Documented foraging, migrating and/or dispersing within riparian

Table 3-5: Potential and Observed Special-Status Wildlife Species Occurring Within the BSA

Species	Status[1] Federal/State/MSCP	Habitat Requirements	Potential to Occur
		Nests primarily in willow, baccharis, or mesquite habitats.	scrub and forest of the BSA during recent surveys or site visits. However, this species has not been documented nesting in the BSA. During focused surveys in 2022 vireo were only observed in the southern portion of the BSA.
Southwestern willow flycatcher (*Empidonax traillii extimus*)	FE/SE/ Covered	Known to occur in stratified riparian habitat structure near water source	**Low.** Migratory willow flycatchers have been documented within the BSA during previous (none observed in 2022) surveys but breeding southwestern willow flycatchers have not.
Mammals			
Dulzura pocket mouse (*Chaetodipus californicus femoralis*)	--/SSC/ --	Variety of habitats, including coastal scrub, chaparral, and grassland. Attracted to grass-chaparral edges.	**Low.** Habitat within the BSA or immediate vicinity is suitable but not ideal. Few recent recorded occurrences/populations recorded nearby.
Northwestern San Diego pocket mouse *(Chaetodipus fallax fallax)*	--/SSC/ --	Found in coastal scrub, chaparral, grasslands, sagebrush, etc.	**Moderate.** Habitat within the BSA or immediate vicinity is suitable but not ideal. Few recent recorded occurrences/populations recorded nearby.
San Diego desert woodrat (*Neotoma lepida intermedia*)	--/SSC/ --	Known to occur in coastal scrub and desert habitats. Moderate to dense canopies preferred. They are particularly abundant in rock outcrops and rocky cliffs and slopes.	**Moderate.** Limited suitable habitat is present within coastal sage scrub and maritime succulent scrub of the BSA and its immediate vicinity.
Pacific pocket mouse (*Perognathus longimembris pacificus*)	FE/SSC/ --	Known to occur in coastal scrub habitats. Seems to prefer soils of fine alluvial sands of coastal plains.	**Low.** Species distribution is extremely limited to Camp Pendleton and Dana Point.
Mexican long-tongued bat (*Choeronycteris mexicana*)	--/SSC/ --	Typically restricted to pinyon-juniper woodland, riparian scrub, and Sonoran thorn woodland habitats. Roosts in relatively well-lit caves, and in and around buildings.	**Low (foraging and roosting).** Very limited foraging and roosting habitat within the BSA or immediate vicinity. Few recent recorded occurrences/populations recorded nearby.

Table 3-5: Potential and Observed Special-Status Wildlife Species Occurring Within the BSA

Species	Status[1] Federal/State/MSCP	Habitat Requirements	Potential to Occur
Spotted bat (*Euderma maculatum*)	--/SSC/ --	Occupies a wide variety of habitats, from arid deserts and grasslands through mixed conifer forests. Feeds over water and along washes. Feeds almost entirely on moths. Needs rock crevices in cliffs or caves for roosting.	**Low (foraging and roosting).** Suitable habitat is present within the BSA or immediate vicinity. However, this species is not well-documented in San Diego County, and its numbers appear negligible on a County-wide basis.
Western mastiff bat (*Eumops perotis californicus*)	--/SSC/ --	Known to occur throughout California and occupies a wide variety of habitats, including grasslands, shrublands, cismontane woodland's; most common in open, dry habitats with rocky areas for roosting.	**Low (roosting), High (foraging).** Suitable foraging habitat is present throughout the BSA, and limited roosting habitat is present among the rock outcrops within or adjacent to the BSA and its immediate vicinity.
Pocketed free-tailed bat (*Nyctinomops femorosaccus*)	--/SSC/ --	Found in a variety of arid areas in Southern California; pine-juniper woodlands, desert scrub, palm oasis, desert wash, desert riparian, etc.	**Low (foraging and roosting).** Suitable habitat is generally not present within the BSA or immediate vicinity, but this species maintains limited potential to occur onsite.
Big free-tailed bat (*Nyctinomops macrotis*)	--/SSC/ --	Inhabit low-lying, arid areas with high cliffs or rocky outcrops for roosting sites. Feeds principally on large moths.	**Low (foraging and roosting).** Habitat within the BSA or immediate vicinity is suitable but not ideal.
Mountain lion (*Felis concolor*)	--/--/ Covered	Occupies a wide range of habitats including mountains, deserts, forests, and wetlands. This species requires large swaths of habitat.	**Moderate.** Habitat within the BSA or immediate vicinity is suitable but not ideal. Mule deer and other potential prey are common to abundant in the BSA.
San Diego black-tailed jackrabbit (*Lepus californicus bennettii*)	--/SSC/ --	Intermediate canopy stages of coastal sage scrub habitats, open shrub herbaceous, and tree herbaceous edges.	**Low.** Suitable but limited habitat is present within the BSA or immediate vicinity. Few recent recorded occurrences/populations recorded nearby.
Southern mule deer (*Odocoileus hemionus fuliginata*)	--/--/ Covered	Occurs in diverse habitats, including sagebrush, grasslands, pinyon-juniper woodlands, and desert scrub.	**Present.** Documented throughout the BSA during recent surveys or site visits.

Table 3-5: Potential and Observed Special-Status Wildlife Species Occurring Within the BSA

Species	Status[1] Federal/State/MSCP	Habitat Requirements	Potential to Occur
American badger (*Taxidea taxus*)	--/--/ Covered	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils and open, uncultivated ground.	**Low.** Suitable habitat is not present within the BSA or immediate vicinity.

[1] Description of status codes:
FE = Listed as federally endangered under the FESA
FT = Listed as federally threatened under the FESA
PSE = Proposed as state endangered under the CESA
SE = Listed as state endangered under the CESA
ST = Listed as state threatened under the CESA
SSC = State Species of Special Concern
FP = Listed as fully protected under CDFW code
BCC = USFWS Bird of Conservation Concern
Covered = MSCP covered species

Total Number of Wildlife Species Found and Special-Status Wildlife Species Found Present or with a Moderate or High Potential to Occur

The open water channel and surrounding riparian forest, riparian scrub, marsh, grasslands, scrub oak chaparral, Torrey pine forest, maritime succulent scrub, and Diegan coastal sage scrub provide suitable breeding and foraging habitat for many wildlife species. Additionally, due to the large size and connectivity of the BSA to adjacent undeveloped, natural lands, the BSA serves as a local linkage and core area for wildlife (City of San Diego 1997a).

A total of 120 wildlife species were observed either on and/or in the vicinity of the BSA during the general and focused biological surveys from 2015 to 2021 (Appendix B); 11 were non-native and/or invasive. The total of 120 species includes one species of crayfish, nine species of butterfly, six species of fish, two species of amphibian, eight species of reptile, 87 species of bird, and seven species of mammal. These species reflect an assemblage of species encountered in urbanized areas, of which much of the BSA is surrounded by, as well as species associated with riparian habitats, sage scrub, chaparral, fields, open water, and marshes. Many of these species are common to the region and would be expected in terrestrial habitats present within the BSA along the coastline. A complete list of wildlife species observed within the BSA during biological surveys is included in Appendix B.

In addition, 19 special-status wildlife species were documented as present in the BSA, including:

- White-tailed kite (*Elanus leucurus*; State fully protected species)
- Belding's savannah sparrow (*Passerculus sandwichensis beldingi*; state-endangered, MSCP-covered)
- California brown pelican (*Pelecanus occidentalis californicus*; State fully protected species, MSCP-covered)
- Coastal California gnatcatcher (*Polioptila californica californica*; federally threatened, MSCP-covered)

- Light-footed Ridgway's rail (*Rallus obsoletus levipes*; federally endangered, state-endangered, state-fully protected, MSCP-covered)
- Least Bell's vireo (*Vireo bellii pusillus*; federally endangered, state-endangered, MSCP-covered)

The 13 additional special-status wildlife species known to occur within the BSA include:

- Monarch (*Danaus plexippus*)
- Saltmarsh (=wandering) skipper (*Panoquina errans*; MSCP-covered)
- Orange-throated whiptail (*Aspidoscelis hyperythra*; MSCP-covered)
- Red-diamond rattlesnake (*Crotalus ruber*; State Species of Special Concern)
- Clark's marsh wren (*Cistothorus palustris clarkae*; State Species of Special Concern)
- Cooper's hawk (*Accipiter cooperi*; MSCP-covered)
- Northern harrier (*Circus hudsonius*; MSCP-covered)
- Yellow-breasted chat (*Icteria virens*; State Species of Special Concern)
- White-faced ibis (*Plegadis chihi*; MSCP-covered)
- Black skimmer (*Rynchops niger*; State Species of Special Concern)
- Yellow warbler (*Setophaga petechia*; State Species of Special Concern)
- Elegant tern (*Thalasseus elegans*; MSCP-covered)
- Southern mule deer (*Odocoileus hemionus fuliginata*; MSCP-covered)

Each of these 19 species, along with their relative abundance, habitat associations, general locations, potentials for Project-related temporal loss impacts, and any species-specific avoidance, minimization and/or mitigation measures are described in the following subsections. This section also includes ten species that maintain moderate or high potentials to occur (not including the potential to forage and/or migrate only), despite not being found during any surveys from 2015 to 2021. Figure 3-9 present the special-status wildlife survey results.

Monarch Butterfly

The monarch butterfly (*Danaus plexippus*) is a migratory insect that overwinters along the coast of California and central Mexico. Monarch butterflies roost in woodlands or groves with nectar and water sources nearby. This species is known to occur within the BSA as a migrating and/or nectaring species; however, this species is not known or expected to overwinter in the BSA. In addition, with an absence of milkweed species (*Asclepias* spp.) in the BSA, there are no larval host plants capable of supporting monarch reproduction.

Saltmarsh (=Wandering) Skipper

The saltmarsh (=wandering) skipper (*Panoquina errans*) is a small butterfly species that is found in salt marshes from southern California to west-central Mexico. Though adults will lay eggs on a number of small grass and herbaceous species, its larvae feed only on saltgrass (*Distichlis spicata*). Adults can nectar on variety of flowers. Caterpillars are found in rolled up leaves or other micro-sheltered areas in salt marsh habitats. This species was observed on saltgrass in salt marsh habitats in the BSA during the surveys conducted in 2020.

Orange-Throated Whiptail

The orange-throated whiptail (*Aspidoscelis hyperythra*) is a small lizard species strongly associated with coastal sage scrub habitat. This species is found throughout southern California and northern Baja California. The orange-throated whiptail may occur in coastal sage scrub, chaparral, edges of riparian woodlands and washes, and in weedy, disturbed areas adjacent to these habitats. Orange-throated whiptails emerge from hibernation in February and March, but some populations may be active throughout the year. Mating may take place May through July, and females deposit two to three eggs. Hatchlings are observed in August. Suitable habitat for orange-throated whiptail occurs within the BSA, and this species has been observed within the uplands area of the BSA (Smith pers. com. 2016).

Coastal Whiptail

The coastal whiptail (*Aspidoscelis tigris stejnegeri*) is a medium-sized lizard found in open scrub, chaparral, and woodland habitats, with open areas for basking and native ants as a prey base. It is often associated with rocky areas or other substrates that offer quick refuge from open basking sites. This species is diurnally active with peak surface activity levels occurring from mid-spring through mid-fall, when the weather is warmest. Suitable habitat is present within the upland scrub and chaparral of the BSA and its immediate vicinity, and it is known to occur in the vicinity. There is a high potential for coastal whiptail to occur within the BSA.

Red-Diamond Rattlesnake

The red-diamond rattlesnake (*Crotalus ruber*) is restricted to southern California and Baja California. It is typically found in chaparral and coastal sage scrub, along creek banks, and in granitic rock outcrops or debris piles. When inactive, the red-diamond rattlesnake occurs in rock crevices, animal burrows, brush piles, or similar micro-habitats. Red-diamond rattlesnakes are crepuscular and are generally active from mid-spring to mid-fall. Prey includes small mammals such as ground squirrels, mice, rabbits, lizards, birds, and other snakes (Klauber 1972; Stebbins 2003). The red-diamond rattlesnake has been observed within upland areas of the BSA (Smith pers. com. 2016).

Coast Patch-Nosed Snake

The coast patch-nosed snake (*Salvadora hexalepis virgultea*) inhabits coastal scrub in coastal southern California. The coast patch-nosed snake requires small mammal burrows for refuge and overwintering sites. Suitable habitat is present within the BSA and its immediate vicinity. As such, there is a high potential for coast patch-nosed snake to occur within the BSA.

Two-Striped Garter Snake

The two-striped garter snake (*Thamnophis hammondii*) is found in marsh and swamps, riparian scrub, riparian woodland, and wetland habitats. The two-striped garter snake is highly aquatic and is usually found in or near permanent fresh water along streams with rocky beds and riparian growth. Suitable habitat is present with the BSA, and there is a high potential for two-striped garter snake to occur within the BSA.

Cooper's Hawk

The range of the Cooper's hawk (*Accipiter cooperi*) is year-round throughout most of the U.S.; its wintering range extends south to Central America, and its breeding range extends north to southern Canada (Rosenfield and Bielefeldt 1993). It is a common breeder in both natural and urban environments, mainly breeding in oak and willow riparian woodlands, but also in eucalyptus trees (Unitt 2004). Breeding occurs from March through July. This hawk forages primarily on medium-sized birds but is also known to eat small mammals such as chipmunks and other rodents (Rosenfield and Bielefeldt 1993). The decline of this species had been caused by urbanization and loss of habitat; however, during the last 20 years, Cooper's hawk has apparently adapted to city living (Unitt 2004). This species has been documented within the BSA during recent bird surveys (Hayworth 2015) and could nest within the BSA.

Southern California Rufous-Crowned Sparrow

The southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*) is a small sparrow that inhabits relatively steep, often rocky, hillsides with grass and forb species in open coastal sage scrub and mixed chaparral. There is a moderate potential for southern California rufous-crowned sparrow to occur within the BSA due to the presence of suitable open coastal sage scrub communities and rocky hillsides that offer limited suitable nesting habitat.

Northern Harrier

Northern harrier (*Circus hudsonius*) is a medium-sized raptor found through most of North America. Northern harriers nest and forage in wetlands, marshes, and grasslands. This species typically nests on the ground in shrubby vegetation, usually at the edge of a marsh building of a large mound of sticks in wet areas. The Northern harrier was observed within the BSA during 2016 general reconnaissance surveys, and it is possible for this species to nest within the marshlands or the adjacent herbaceous disturbed areas of the BSA.

Clark's Marsh Wren

Clark's marsh wren (*Cistothorus palustris clarkae*) is a small songbird associated with dense freshwater or brackish marsh dominated by bulrush or cattails. It is a year-round resident of its occupied habitats. This species has been documented within dense emergent-dominant marshes of the BSA during recent surveys and site visits, particularly taller stands of cattail and tule.

White-Tailed Kite

White-tailed kite (*Elanus leucurus*) is a medium-sized raptor found in rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland. This species uses open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching. They are found from Baja California to Oregon west of the Sierras. White-tailed kite was observed within the BSA during recent surveys (Smith pers. com. 2016) and could nest within the BSA.

American Peregrine Falcon

The American peregrine falcon (*Falco peregrinus anatum*) is a large falcon found in multiple habitats, especially in areas with cliffs and rocky outcrops. Peregrine falcons feed primarily on small birds and are known to live in urban areas and feed on pigeons. This species is known to nest on the seaside cliffs of Torrey Pines State Park. There is a high potential for peregrine falcon to occur within the BSA as a foraging species; however, no suitable nesting habitat exists within the BSA.

Long-Billed Curlew

The long-billed curlew (*Numenius americanus*) is a large migratory shorebird with a distinctive long and downturned bill. It breeds in the grasslands of the Great Basin and Great Plains and winters in wetlands, estuaries, mudflats, flooded fields, and beaches. In southern California, it occurs as a breeding or migrating species The BSA is outside of the breeding range of this species, however, suitable wintering and migratory stop-over habitat is present within the BSA.

Yellow-Breasted Chat

The yellow-breasted chat (*Icteria virens*) is a large, migratory, songbird species of warbler. It utilizes riparian woodlands, riparian scrub, and tall, dense vegetation adjacent to riparian and wetland systems for nesting and foraging purposes. This species is unique among warblers in that it can be active both diurnally and nocturnally. It has a bold display flight that further sets it apart from typical warblers. In the BSA, this species has been documented during its nesting season within riparian forest, riparian scrub and dense coyote brush and blue elderberry-dominated habitat types.

Belding's Savannah Sparrow

Belding's savannah sparrow (*Passerculus sandwichensis beldingi*) is a small sparrow that inhabits coastal salt marshes. It nests in pickleweed on and about margins of tidal flats. Belding's savannah sparrow is found year-round in coastal San Diego County. Over 100 territories of Belding's savannah sparrow are known to occur within the Lagoon (Zembal and Hoffman 2010). This species has been observed within the northern (tidal) coastal salt marsh communities within the BSA (Smith pers. com. 2016; Hastings pers. com. 2016). Focused surveys for this species were conducted in various portions of the Lagoon in 2015, 2019 and 2022. The 2015 surveys did not yield locations within the BSA, as the surveys did not occur in the Phase 1 Project footprint. The 2019 surveys resulted in five locations for this species within the Phase 1 area, plus six locations in the Phase 2 area within 500 feet of the northern Phase 1. All or most observed locations consisted of breeding territories. In 2022, thirty-eight BSSP territories were consistently detected within the southern coastal saltmarsh habitat in the northern portion of the BSA. No BSSP individuals were detected between central portion of the BSA. Three individual BSSP were detected during Survey 1 in Carroll Canyon Creek but were not observed again.

California Brown Pelican

The California brown pelican (*Pelecanus occidentalis californicus*) is a large, seagoing bird that often occurs along coastlines and beaches, but is more often seen in the ocean or large bays. There is no suitable nesting habitat in the BSA, and foraging opportunities are negligible, relegated only to the open water channel and

tidal inlet at the northern end of the BSA. This species has been documented flying over and near the BSA, associating with the coastline, but not within the BSA itself.

White-Faced Ibis

The white-faced ibis (*Plegadis chihi*) is a large wading bird with glossy greenish-purple plumage and a long bill. This species prefers marsh habitats, but it can frequently be observed foraging in flooded agricultural fields. In southern California, it can occur as a breeding, wintering, or migrating species. It uses its long bill to probe moist soils for aquatic invertebrates and other opportunistic prey items. This species has been documented in the BSA; however, it is not known to nest in the BSA, though suitable nesting habitat is found within the BSA.

Coastal California Gnatcatcher

Coastal California gnatcatcher (*Polioptila californica californica*) is a small songbird that occurs in coastal sage scrub habitat in Southern California and Baja, California. The primary cause of this species' decline is the cumulative loss of coastal sage scrub vegetation to urban and agricultural development (USFWS 1991). Gnatcatchers generally inhabit Diegan coastal sage scrub and Riversidian coastal sage scrub dominated by California sagebrush and flat-topped buckwheat, generally below 500 meters in elevation. This species typically avoids slopes greater than 25 percent with dense, tall vegetation when nesting. Coastal California gnatcatcher was detected within the Diego coastal sage scrub of the BSA during 2016 general reconnaissance surveys and known populations occur in the upland area (Smith pers. com. 2016). Focused surveys, nesting bird surveys and/or incidental observations for this species were conducted in 2015, 2016, 2017, and 2020. The 2015 surveys yielded six locations in the coastal sage scrub adjacent to the western edge of the BSA, but none within the BSA itself. The 2016 surveys yielded five locations within the BSA, primarily in coastal sage scrub habitats, but none beyond the boundary of the BSA. The 2017 results included one location near the northwestern edge of the BSA. A 2020 incidental observation included one location in the northern end of the BSA. These results should be cautiously interpreted collectively to assess presence/absence and carrying capacity potential in the BSA. With ample suitable habitat present for this species, it is safe to assume that the 2015 and 2016 data is reliable but may not account for all individuals of this species that may be present in the BSA in a given year. It is safely assumed that this species nests within suitable habitats of the BSA.

Light-Footed Ridgway's Rail

Light-footed Ridgway's rail (*Rallus obsoletus levipes*: LFRR) is a shorebird found in salt marshes traversed by tidal sloughs where cordgrass (*Spartina* sp.) and pickleweed are the dominant vegetation. Light-footed Ridgway's rail requires dense growth of either pickleweed or cordgrass for nesting and escape cover. It feeds on mollusks and crustaceans. Ridgway's rail has been detected in the Lagoon every year since 1994; five breeding pairs were observed within the Lagoon during 2015 surveys (Zembal et al. 2015). This species has been observed in the cattail habitat within the BSA (Smith pers. com. 2016). Focused surveys for this species were conducted in 2015 and 2019. The 2015 surveys resulted in one location within 500 feet of the eastern BSA boundary. The 2019 surveys resulted in one location near the 2015 location and one location within the BSA toward the northern end. The 2022 focused surveys resulted in the detection of five individuals within the northern and central portions of the BSA. During the 2022 focused surveys, one additional individual was incidentally observed adjacent to the northern portion of the BSA, but was detected outside of the survey period. One confirmed nesting pair was identified in the central portion of the BSA.

Based on the life history of this species, LFRR are known to move between freshwater wetlands and salt mash habitats and have historically used the existing habitat linkage provided by Los Penasquitos Creek, adjacent Floodplain Enhancement 2, to move between suitable saltmarsh habitat and upstream foraging areas. This species is safely assumed to nest within suitable habitats of the BSA and/or its immediate surroundings. This species is state-fully protected and therefore state-defined take of the species is not permitted.

Black Skimmer

The black skimmer (*Rynchops niger*) is a distinctively patterned member of the gull family found on sandy beaches and shorelines of sheltered bays, inlets, lagoons, and ocean coasts. It is typically found in small colonies but may occur singly on occasion. The black skimmer nests on sandy flats near its foraging areas, where it mainly forages at night using its specialized, large bill to capture small fish near the surface of the water. It is a highly maneuverable species with extremely quick reflexes well-suited toward capturing prey items. Suitable skimmer habitat in the BSA includes the sandy flats and open waters at the tidal inlet where one individual was observed resting on the April 22, 2021 survey. With suitable habitat present and documented presence, this species is present as a foraging and resting species, but it is not known to nest in or adjacent to the BSA; therefore, it is presumed absent for nesting.

Yellow Warbler

The yellow warbler (*Setophaga petechia*) is a small, migratory songbird with bright yellow plumage. It is found in riparian forests, woodlands and mature landscaped areas that mimic its well-developed riparian preference. It tends to prefer the upper canopies of its forested habitat and builds a neat cup nest high in its selected nesting tree. In the BSA, this species has been commonly documented within the nesting season in riparian forest habitat and is among the most common of the breeding species found in this habitat type.

Western Bluebird

The western bluebird (*Sialia mexicana*) is a songbird found in areas of scattered trees, open conifer forests, park space, and farmlands. The bluebird breeds in semi-open areas including pine woods, oak woodlands, streamside groves, ranch country, and occasionally in pinyon-juniper woods, but avoids hot dry regions. Additionally, the species winters in many types of open or semi-open habitats, including pinyon-juniper, desert, farmland, and others. Suitable bluebird habitat in the BSA primarily includes grassy expanses of degraded salt marsh and non-native grassland with associate trees that contain nesting cavities. However, bluebirds would generally not be expected to occur in chaparral, sage scrub or riparian habitats that do not border open areas. With suitable habitat present and known locations nearby, this species has a moderate potential to occur in the BSA.

Elegant Tern

The elegant tern (*Thalasseus elegans*) is a member of the gull family found over open coastal waters, especially sheltered bays, inlets, and lagoons with sandy beaches. It is a colonial species that may form large colonies during the nesting season. The elegant tern nests on sandy flats near its foraging areas, where it forages by day to capture small fish near the surface of the water. Suitable elegant tern habitat in the BSA includes the sandy flats and open waters at the tidal inlet where several individuals were observed resting on the April 22, 2021

survey. With suitable habitat present and documented presence, this species is present as a foraging and resting species, but it is not known to nest in or adjacent to the BSA; therefore, it is presumed absent for nesting.

Least Bell's Vireo

Least Bell's vireo (*Vireo bellii pusillus*) is a small songbird known to occur in riparian forest, scrub, and woodland habitats. It nests primarily in willow, mule fat, or mesquite habitats. It is present in southern California generally from March to September. Suitable habitat is present within the BSA. Least Bell's vireo has been detected within the BSA but has not been observed nesting (Hayworth 2015; Smith pers. com. 2016). Focused surveys and/or nesting bird surveys for this species were conducted in 2015 and 2016. One location was found in 2015, and two locations were found in 2016. However, breeding statuses were not obtained, and the locations may only represent transient individuals. During the 2022 focused surveys, a male use area was mapped from where Los Peñasquitos Creek enters the BSA to an area extending approximately 1,500 feet downstream (northwest). This male was never observed with a female and remained unpaired during the season. Therefore, no LBVI nesting evidence was observed.

Regardless, suitable nesting habitat does exist within the BSA, and this species could nest within the BSA.

Northwestern San Diego Pocket Mouse

Northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*) is a small rodent found in coastal scrub, chaparral, grasslands, and sagebrush. Upland habitat within the BSA and the immediate vicinity is suitable but not ideal. Few recent recorded occurrences/populations have been documented nearby. However, since suitable habitat is present, this species has a moderate potential to occur within the BSA.

San Diego Desert Woodrat

San Diego desert woodrat (*Neotoma lepida lepida)* is a medium-sized rodent known to occur in coastal scrub and desert habitats; moderate to dense canopies are preferred. This species is particularly abundant in rock outcrops and rocky cliffs and slopes, especially toward the desert slope. San Diego desert woodrat builds large nests of sticks or other vegetation, which aids in detection of presence. Habitat within the BSA and the immediate vicinity is suitable for the San Diego desert woodrat, though given the relative paucity of rocky areas and preferred cacti species, this species has a moderate potential to occur in the BSA.

Mountain Lion

The Mountain lion (*Felis concolor*) is a large cat found in a wide range of habitats including mountains, deserts, forests, and wetlands. This species requires large swaths of habitat and is known to utilize the urban/natural fringe. Mountain lions' preferred prey includes deer, but they will take smaller prey including raccoons, rabbits, pets, and domestic animals. Since the BSA is broadly bounded by Interstate 5, the Pacific Ocean, and urbanized areas, and mule deer and other potential prey are prevalent, the natural lands of the BSA are considered marginally suitable for mountain lions. Therefore, there is a moderate potential for this species to occur in the BSA.

Southern Mule Deer

Southern mule deer (*Odocoileus hemionus fuliginatus*) occur in diverse habitats including sagebrush, grasslands, pinyon-juniper woodlands, forests, and desert scrub. Mule deer have been frequently encountered in the BSA, as suitable habitat occurs throughout the BSA and its undeveloped immediate vicinity.

3.7.3 Other Special-Status Wildlife Species Observed or Detected

Survey results outlined in Appendix B include three special-status avian species observed only as flyover or resting species along the coastline or tidal inlet but assumed absent for nesting purposes from within terrestrial habitat of the BSA: black skimmer, elegant tern, and California brown pelican. Since negligible to no terrestrial habitat exists within the BSA to support these species for nesting purposes, no further discussion of these species is included in the report.

Results from the field efforts also documented the presence of woodrat (*Neotoma* sp.) middens. No formal trapping, however, was completed and no confirmed visual detections were made to positively identify the species, though the large construction of most of the middens assumes occupancy by dusky-footed woodrat (*Neotoma fuscipes*). Despite no occurrences of special-status woodrat species generated from the literature review, the potential exists that some of the middens may be of the San Diego desert woodrat (*Neotoma lepida intermedia*), a State Species of Special Concern.

3.7.4 USFWS-Designated Critical Habitat

There is no USFWS-Designated Critical Habitat within the BSA. The closest USFWS-Designated Critical Habitat, which is designated for the San Diego fairy shrimp, is located approximately 1.25 miles northeast of the BSA. No vernal pools are located within the BSA, and the potential for San Diego fairy shrimp to occur within the BSA is unlikely.

3.7.5 Wildlife Corridors, Habitat Linkages and Core Areas

Wildlife movement corridors, also called dispersal corridors or habitat linkages, are linear features whose primary wildlife function is to connect at least two significant habitat areas (Beier and Loe 1992). Other definitions of corridors and linkages are as follows:

- A corridor is a specific route that is used for movement and migration of species. A corridor may be different from a linkage because it represents a smaller or narrower avenue for movement. "Linkage" means an area of land that supports or contributes to the long-term movement of wildlife and genetic material.
- A linkage is a habitat area that provides connectivity between habitat patches, and year-round foraging, reproduction, and dispersal habitat for resident plants and animals.

Wildlife corridors and linkages are important features in the landscape, and the viability and quality of a corridor or linkage are dependent on site-specific factors. Topography and vegetative cover are important factors for corridors and linkages and should provide cover for both predator and prey species. Wildlife corridors and linkages should direct animals to areas of contiguous open space or resources and away from humans and development. The corridor or linkage should be buffered from human encroachment and other disturbances (e.g., light, loud noises, domestic animals) associated with developed areas that have caused habitat fragmentation (Schweiger et al. 2000). Wildlife corridors and linkages may function at various levels depending on these factors and, as such, the most successful of wildlife corridors and linkages accommodate all or most of the necessary life requirements of predator and prey species.

Width and connectivity are assumed to be the primary factors of a "good" corridor (Forman 1987); "steppingstone reserves" for pollinators, seed dispersers, and other flying species such as birds, bats, and insects should also be included as "good" factors (Soulé 2003). The level of connectivity needed to maintain a population of a particular species will vary with the demography of the population, including population size, survival and birth rates, and genetic factors such as the level of inbreeding and genetic variance (Rosenberg et al. 1997). Areas not considered as functional wildlife dispersal corridors or linkages are typically obstructed or isolated by concentrated development and heavily traveled roads, known as "chokepoints". One of the worst scenarios for dispersing wildlife occurs when a large block of habitat leads animals into "cul-de-sacs" of habitat surrounded by development. These habitat cul-de-sacs frequently result in adverse human/animal interface.

The BSA occurs within an open space bordered to the west by steep hills and cliffs, North Torrey Pines Road (a high-flow commuter road), Torrey Pines Golf Course, a portion of Torrey Pines State Natural Reserve, and the Pacific Ocean. The Lagoon continues north past the northern portion of the BSA where it is capped by urban development. The east and south sides of the BSA are surrounded by urban development, with businesses, residences, and Interstate 5 running adjacent to the east and south sides of the BSA. The BSA is located within Core Biological Resource Area 14: Los Peñasquitos Lagoon/Del Mar Mesa/Peñasquitos Canyon. Core areas are defined by the MSCP as areas that if lost or fragmented cannot be mitigated for because of the high concentration of biological resources existing in the area (City of San Diego 1997a). The BSA does provide refuge for local wildlife and, although linkages are potentially intersected by Interstate 5, two habitat linkages are present that may be used if undercrossings are available to wildlife. Del Mar Mesa–Black Mountain linkage links the BSA to biological core areas to the northeast, and the Los Peñasquitos Creek west of Poway linkage provides an east-west linkage for wildlife, given there are available routes for terrestrial wildlife to cross underneath Interstate 5. Therefore, it is possible east-west movement to and from the BSA does occur, which acts as both a core area and a linkage for wildlife movement.

The Sorrento Valley Corridor, which connects Los Penasquitos Canyon to the Lagoon, was determined as an important functional wildlife corridor to areas outside of TPSNR (Crooks 1997). Crooks identified at least two routes used by predators and mesopredators through the Sorrento Valley Corridor. Both routes follow the natural riparian channel that connects Los Peñasquitos Canyon to the Lagoon by way of Sorrento Valley. The northern route starts at the west end of Los Peñasquitos Canyon, passes under Interstate 805 and Interstate 5, continues along the lawn south of the business complex on Sorrento Valley Road, passes under Sorrento Valley Road, and ends in the Lagoon. The southern route starts on the east side of Los Peñasquitos Canyon, passes under Interstate 805 and Interstate 5, goes past J&R Lumber on Sorrento Valley Road, goes under Sorrento Valley Road, and ends in the Lagoon. Species found using this corridor frequently (nightly to monthly) include bobcats, coyotes, foxes, racoons, opossums, and skunks. Deer tracks were not found during the study with Crooks speculating that the low underpass limited use of this corridor by mule deer. Mountain lion tracks were also not detected, but presence of this species is considered a rare event for TPSNR and lack of detection during Crook's study may be due to the short time span of monitoring (Crooks 1997). As the only functional corridor between TPSNR and other core areas during the study, Crooks considered this route as vital for the species using it, as well as for potential use by mountain lion and mule deer.

In addition, the Lagoon is as an important stopover for the Pacific Flyway, an avian migratory route for birds travelling south from Arctic and sub-Arctic regions south to wintering sites. The Lagoon acts both as a stopover, offering foraging and rest, and as the final stop for many shorebirds, waterfowl, passerines, and raptor species (ESA 2015).

4.0 MSCP Consistency

Approximately 92 percent of the BSA is located within the MHPA. The only areas outside of the MHPA include the southern linear extent of the riparian forest, concrete-lined channel, and the portions of the Project that occur on the railway and developed areas east of the overall Project boundary. The Project would comply with the MSCP's general management directives and specific management policies and directives for the northern habitat area and Appendix A of the City of San Diego MSCP Subarea Plan (1997a). Species specific management directives for each of the present MSCP-covered plant and wildlife species are discussed below.

4.1 Compatible Land Uses

Regarding compatible land uses within the MHPA, the Project would result in the disturbance of 113.9 acres within the BSA (including disturbed and developed habitats) to achieve a successfully restored wetland. Of these total impacts, 103.3 acres are within MHPA lands. The result of the Project, once all restoration success criteria thresholds and goals stipulated by the Restoration Plan/HMMP are met, would exceed the 90% preservation goal specified for MHPA lands. Furthermore, the Project includes the enhancement and/or restoration of disturbed habitats, non-native grasslands, and other degraded habitat types to native, highly functioning wetlands, riparian systems, and upland habitats, ensuring that well over 90% of the existing MHPA footprint within the BSA would be preserved with perpetual management directives specified in the Restoration Plan/HMMP.

4.2 General Planning Policies and Design Guidelines

Regarding general planning policies and design guidelines for roads and utilities, new developments are relegated only to outfall improvements and the minimal amount of permanent access roads necessary to access the BSA for long-term operations and maintenance activities. The areas that would be developed have been positioned as close to peripheral development as possible to maintain functionality without encroaching significantly into the natural lands of the BSA, leaving wildlife movement and corridor vitality intact. The Project design also minimizes habitat fragmentation by siting its developed components at and/or near the edges of developed areas.

No additional fencing, lighting or signage are proposed, other than the minimum signage necessary to limit access, deter littering, and educate the public.

No materials storage, mining, extraction, and/or processing facilities are proposed. Therefore, there are no impacts associated with these types of activities.

One central aspect of the Project is to control flooding. The Project seeks to control flooding by restoring the Lagoon through a large-scale restoration effort that would allow for the ecological, geological, hydrological, and other natural processes to be restored under an approved Restoration Plan/HMMP with a perpetual management component. A series of technical studies on the Lagoon have been completed over many years with the goal of controlling flooding through a wetland restoration effort that involves preparatory earthwork, channelization creation, and existing channel enhancement. These studies have addressed impacts to upstream and downstream habitats, flood flow volumes, velocities and configurations, sea level rise, water availability, and changes to the water table, among other variables. The collective interpretation of these

studies all support the dual notions that flooding can be controlled and Lagoon functionality will improve through the implementation of the Project.

Design features to control flooding include strategically placed unnatural materials (e.g., gabion structures and articulated concrete blocks) to direct and channelize high-velocity flows. These structures would be vegetated with native plant species and incorporated into the Project design, consistent with MSCP directives.

4.3 Land Use Adjacency Guidelines

Because the proposed Project impact footprint occurs within and adjacent to the MHPA, the project is required to document compliance with the MSCP Land Use Adjacency Guidelines. These guidelines and the applicable compliance measures outlined below would be made conditions of the project permit.

Drainage

All new and proposed parking lots and developed areas in and adjacent to the preserve must not drain directly into the MHPA. All developed and paved areas must prevent the release of toxins, chemicals, petroleum products, exotic plant materials and other elements that might degrade or harm the natural environment or ecosystem processes within the MHPA. This can be accomplished using a variety of methods including natural detention basins, grass swales or mechanical trapping devices. These systems should be maintained approximately once a year, or as often as needed, to ensure proper functioning. Maintenance should include dredging out sediments if needed, removing exotic plant materials, and adding chemical-neutralizing compounds (e.g., clay compounds) when necessary and appropriate (City of San Diego 1997).

All Project-related developments (e.g., outfalls, access roads) have been designed to facilitate annual cleaning efforts or greater frequencies if needed. Proposed operations and maintenance activities include dredging accumulated sediments, removing exotic plant species, and maintain proper drainage flows throughout the MHPA.

Toxics

Land uses, such as recreation and agriculture, that use chemicals or generate by-products such as manure, that are potentially toxic or impactive to wildlife, sensitive species, habitat, or water quality need to incorporate measures to reduce impacts caused by the application and/or drainage of such materials into the MHPA. Such measures should include drainage/detention basins, swales, or holding areas with non-invasive grasses or wetland-type native vegetation to filter out the toxic materials. Regular maintenance should be provided. Where applicable, this requirement should be incorporated into leases on publicly owned property as leases come up for renewal (City of San Diego 1997).

The introduction of toxics is not proposed by the Project; all herbicides that could be used for the treatment of exotic plant species would be EPA-approved for wetland usage and of minimal toxicity to the environment. No hazardous construction materials storage would be allowed that could impact the adjacent MHPA, and any drainage from the construction site must be clear of such materials. The contractor shall ensure that all areas for staging, storage of equipment and materials, trash, equipment maintenance, and other construction-related activities are within the limits of the project area (AMM-1).

Lighting

Lighting of all developed areas adjacent to the MHPA should be directed away from the MHPA. Where necessary, development should provide adequate shielding with non-invasive plant materials (preferably native), berming, and/or other methods to protect the MHPA and sensitive species from night lighting (City of San Diego 1997).

No permanent lighting is proposed for this project.

Noise

Uses in or adjacent to the MHPA should be designed to minimize noise impacts. Berms or walls should be constructed adjacent to commercial areas, recreational areas, and any other use that may introduce noises that could impact or interfere with wildlife utilization of the MHPA. Excessively noisy uses or activities adjacent to breeding areas must incorporate noise reduction measures and be curtailed during the breeding season of sensitive species. Adequate noise reduction measures should also be incorporated for the remainder of the year (City of San Diego 1997).

No long-term noise impacts are associated with the project. Construction within and adjacent to suitable habitat for nesting birds during the breeding season (i.e., February 1 through September 15) would be avoided to the extent feasible. However, should work need to occur within this timeframe, avoidance and minimization measure AMM-1, AMM-2, AMM-3, AMM-4 and AMM-5, which require pre-construction nesting bird surveys, would be implemented to avoid significant impacts to nesting birds. In addition, BMPs outlined in AMM-1 would be implemented to avoid impacts to wildlife.

Barriers

New development adjacent to the MHPA may be required to provide barriers (e.g., non-invasive vegetation, rocks/boulders, fences, walls, and/or signage) along the MHPA boundaries to direct public access to appropriate locations and reduce domestic animal predation (City of San Diego 1997).

No permanent barriers will be constructed as a part of the project.

Invasive Plant Species

No invasive non-native plant species shall be introduced into areas adjacent to the MHPA (City of San Diego 1997).

The proposed Project consists of restoration of degraded habitat, and the removal of invasive species. Therefore, no invasive plant species will be introduced as a part of the project.

Brush Management

New residential development located adjacent to and topographically above the MHPA (e.g., along canyon edges) must be set back from slope edges to incorporate Zone 1 brush management areas on the development pad and outside of the MHPA (City of San Diego 1997). If required, Zones 2 and 3 should be combined into one zone (Zone 2) and may be located in the MHPA upon granting of an easement to the City (or other acceptable agency) except where narrow wildlife corridors require it to be located outside of the MHPA. If required, Zone 2 should be increased by 30 feet, except in areas with a low fire hazard severity rating where no Zone 2 would be required. Brush management zones should not be greater in size that is currently

required by the City's regulations. The amount of woody vegetation clearing shall not exceed 50 percent of the vegetation existing when the initial clearing is done. Vegetation clearing shall be done consistent with City standards and shall avoid/minimize impacts to covered species to the maximum extent possible. For all new development, regardless of the ownership, the brush management in the Zone 2 area should be the responsibility of a homeowners association or other private party. For existing project and approved projects, the brush management zones, standards and locations, and clearing techniques should not change from those required under existing regulations.

The project is not a residential development and would not create any new brush management zones. Therefore, this is not applicable to the project.

Grading/Land Development

Manufactured slopes associated with site development shall be included within the development footprint for projects within or adjacent to the MHPA (City of San Diego 1997).

The project does not include any proposed manufactured slopes.

4.4 MSCP Management Goals and Objectives

The majority of the Project is on MSCP preserved land. The Project serves the overarching goal of the MSCP by restoring degraded salt marsh habitat to higher functioning wetlands. The end result of the Project will maintain and enhance biological diversity in the region and conserve viable populations of endangered, threatened, and key sensitive species and their habitats, thereby preventing local extirpation and ultimate extinction. The Project would improve existing conditions for a wide variety of flora and fauna and restore special-status plant species impacted by Project construction/restoration activities. After all construction is complete, operations and maintenance activities would ensure that maximized biological values are maintained well into the future. In addition, low-intensity public usage by virtue of hiker access along the marsh trail precludes intense or disturbing activities from within or adjacent to the MPHA; no other public access is proposed. Since the Project serves to restore, enhance, and protect the resources in the MHPA, the Project falls under the Priority 1 category.

The Priority 1 operations and maintenance activities for the Project will include exotic plant species control, litter removal and control, existing marsh trail maintenance, signage installation and maintenance, erosion control, off-road vehicle prohibition, channel maintenance, and sediment removal as specified in the City of San Diego MSCP Subarea Plan (1997a). Baseline vegetation mapping completed for the MSCP indicates that the majority of the BSA supports southern riparian scrub, southern coastal salt marsh, and coastal and valley freshwater marsh, with areas of valley and foothill grassland and Diegan coastal sage scrub along the western margins. A summary figure included as Figure 5 in the MSCP Subarea Plan combines the riparian and wetland habitats as "riparian/wetlands." Although the project will result in a loss of riparian scrub, in favor of salt marsh and other habitats that are more consistent with historical conditions, this change does not represent a substantial adverse effect to baseline habitat conditions relied upon for the conservation analysis in the MSCP.

The Project is subject to the specific management policies and directives for the Northern Area of the MSCP Subarea Plan that includes the Lagoon. Although some impacts to special-status plant and wildlife species are possible or anticipated, the Project is centered on habitat enhancement, and restoration and impacts to special-status species would be largely mitigated through overall improved habitat value and function. Plant

species covered under the MSCP that could be impacted include San Diego barrel cactus, Torrey pine, Del Mar Mesa sand aster and coast wallflower (though San Diego populations of coast wallflower are now treated as the common species). MSCP-covered wildlife species found present in the BSA include coastal California gnatcatcher, Cooper's hawk, Belding's savannah sparrow, elegant tern, least Bell's vireo, light-footed Ridgway's rail, mule deer, northern harrier, orange-throated whiptail, saltmarsh skipper, California brown pelican and white-faced ibis. The Project would enhance and restore habitats conducive for the long-term survival of these MSCP-covered species, as well as hundreds of other native plant and wildlife species. Management directives for these species under the Subarea Plan require specific management directives for the protected population that must include specific measures to protect against detrimental edge effects to these species and prevent unauthorized collection. Area-specific management directives must include appropriate fire management/control practices to protect against a fire cycle that may become too frequent. The Project includes avoidance and minimization measures that will effectively limit edge effects, direct take, and fire management/control practices to adequately protect these species per the MSCP. Additionally, the Project will restore and enhance habitats for all impacted plant and wildlife species and seeks to restore the Lagoon to its historic vegetative composition, creating a region of higher ecological value for all native flora and fauna that inhabit the Lagoon. Species-specific management actions for all present MSCP-covered species within the Project site are included below.

Del Mar Mesa Sand Aster

MSCP conservation levels required for coverage of this species stipulate protection from edge effects, unauthorized collection, and increased fire frequency. Since the Project footprint is largely confined to natural lands and mostly involves restoration activities with associated/ancillary facilities in proximity to natural land installed so as to minimize impacts, any edge effects to adjacent vegetation communities would likely be temporal in nature. Under such circumstances, it would not be expected for the proposed construction to contribute to habitat fragmentation or increase the potential for adverse edge effects. Further, the Project does not propose modifications to potential access points that may allow for unauthorized collection. Invasive plant species control would also aid in the reduction of wildfire potential and detriment edge effects specified by the MSCP Subarea Plan. Therefore, the Project is would not adversely affect the goals and objectives of the MSCP.

Coast Wallflower

MSCP conservation levels required for this species are limited to preserve-level management of southern foredunes and southern maritime chaparral habitats. The Project does not propose impacts to these habitat types. Further, per Appendix A of the Subarea Plan, populations of this species within San Diego County may now be considered a more common species of wallflower, though scientific consensus still has not been met.

Torrey Pine

This species is covered by the MSCP because the single naturally occurring population at Torrey Pines State Reserve will be conserved and appropriately managed. The MSCP assumed a 100% conservation of the native populations and that no major populations would be impacted. There are no ASMD for this species. The Project will result in the removal of one (1) individual Torrey Pine. This impact is unavoidable and represents a small portion of the population that would not jeopardize the continued survival of the species and is therefore consistent with the MSCP conditions of coverage.

San Diego Barrel Cactus

This species is covered by the MSCP through conservation of a majority of populations. Torrey Pines is not listed amongst the population areas with specific conservation levels. ASMDs for the species including management of edge effects, unauthorized collection, and appropriate fire management/control practices. The Project will not result in direct impacts to any San Diego barrel cactus and is not expected to increase indirect effects such as edge effect, unauthorized collection, or fire frequency/severity. Therefore, the Project meets the MSCP conditions of coverage for this species.

Belding's Savannah Sparrow

MSCP conservation levels required for this species are limited to preserve-level management. A primary goal of the Project is to restore and enhance healthy wetland and tidal function of the Lagoon through active management that is anticipated to result in the net increase of the value and function of habitat for this species. Since the Project footprint is largely confined to natural lands and mostly involves restoration activities, with associated/ancillary facilities in proximity to natural land installed so as to minimize impacts, any edge effects to adjacent vegetation communities would likely be temporal in nature. Therefore, the Project is consistent with MSCP coverage requirements for this species.

California Gnatcatcher

Basis for MSCP coverage of this species is based on landscape-level preserve design. Loss of coastal sage scrub habitats within the MHPA is not consistent with MSCP coverage for this species and would therefore be significant. Requirements for species coverage under the MSCP require no clearing of occupied gnatcatcher habitat within the MHPA between March 1 and August 15. Although large expanses of available coastal sage scrub habitat would remain intact for this species upon Project completion, any loss of habitat for coastal California gnatcatcher would be considered significant and would require mitigation.

Cooper's Hawk

MSCP conservation levels required for this species are limited to preserve-level management of foraging and nesting habitats, including coastal sage scrub (considered foraging habitat). Loss of coastal sage scrub foraging habitats and/or nesting habitats within the MHPA may not be consistent with MSCP coverage for this species and may be potentially significant. During restoration activities, some available riparian nesting habitat would be converted to saltmarsh wetland habitat types, but foraging habitats would be diverse and readily available throughout the BSA upon Project completion. It is important to note that some of the existing riparian habitat, particularly toward the downstream end of Carroll Canyon Creek that is proposed for saltmarsh restoration, was not historically present and would not have been available as nesting habitat for Cooper's hawk had it not been for the confluence of factors that led to the degraded saltmarsh conditions downstream of the recruited riparian habitats that are present today. However, even though there would be a slight reduction in the amount of available nesting habitat for this species at the localized level within the BSA, at the preserve level there would still be plentiful nesting and foraging habitats available for this species upon Project completion. Therefore, the Project is consistent with the MSCP objectives for this species.

Least Bell's Vireo

MSCP conservation levels required for this species include preserve-level management and site-specific considerations. A primary goal of the Project is to restore and enhance healthy wetland and tidal function of the Lagoon through active management that is anticipated to result in net increase of value and function of habitat. The Project proposes altering 29 acres of riparian forest/scrub habitats southern arroyo willow riparian forest, mule fat scrub, and southern willow scrub in the form of no-net loss salt-marsh restoration. Approximately 5 percent of the available suitable nesting habitat within the BSA would undergo type conversion from riparian to saltmarsh habitat. Conversion of riparian forest to salt marsh habitat would represent a loss of function to this species at the localized level due to conversion of suitable nesting habitat to non-suitable habitat. Conversion of riparian forest/scrub habitats to salt marsh may not be consistent with MSCP requirements for species coverage and may be considered significant. However, least Bell's vireo has not been documented nesting within the BSA, so the riparian forest and scrub habitats that are present within the BSA do not appear to support nesting least Bell's vireos, but rather dispersing and migrating individuals only. The 2022 vireo locations are in an area that is not subject to conversion to salt marsh. As such, loss or conversion of riparian and scrub habitat types as a result of the Project would not be anticipated to adversely affect this species on the preserve level, nor at the regional level. In addition, as was the case for Cooper's hawk, much of the riparian forest/scrub habitat that is available now for this species would not have been present had it not been for the confluence of factors that led to the degraded saltmarsh conditions downstream of the largely recruited riparian habitats present today. Since the Project footprint is largely confined to natural lands and mostly involves restoration activities, with associated/ancillary facilities in proximity to natural land installed to minimize impacts, any edge effects to adjacent vegetation communities would likely be temporal in nature. In addition, requirements for species coverage under the MSCP require no clearing of occupied vireo habitat within the MHPA between March 15 and September 15, outside the nesting season. In the event that vegetation clearing could occur within that timeframe, pre-construction surveys would determine least Bell's vireo occupancy status at that time. Since preserve level protections and available habitat in and around the BSA would remain in place upon Project completion for this species, the Project is compliant with MSCP coverage requirements for least Bell's vireo.

Light-footed Ridgway's Rail

MSCP conservation levels required for this species are limited to preserve-level management. A primary goal of the Project is to restore and enhance healthy wetland and tidal function of the Lagoon through active management that is included as a primary requirement of species coverage under the MSCP. In addition, the Project will enhance linkages of the MSCP Areas to the east and provide increased dispersal opportunities for this species to constrained upstream habitat. The Project would also result in increased saltmarsh habitat with additional foraging and nesting opportunities for this species. Since the Project footprint is largely confined to natural lands and mostly involves restoration activities, with associated/ancillary facilities in proximity to natural land installed so as to minimize impacts, any edge effects to adjacent vegetation communities would likely be temporal in nature. Therefore, the Project is consistent with MSCP coverage requirements for this species.

Light-footed Ridgway's rail is also a fully protected species under Fish and Game Code. Fully protected species may not be taken or possessed at any time and no licenses or permits can be issued for their take except for collecting these species for necessary scientific research, relocation of the bird species for the protection of livestock, or if they are a covered species whose conservation and management is provided for in a NCCP.

The MSCP does not include take for wetland-dependent covered species like light-footed Ridgway's rail. Take is defined under Section 86 of the Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." The loss of habitat is not included in the state definition of take, as contrasted with the federal definition which includes harassment which can be interpreted as including the loss of habitat. The project is not expected to result in state-defined take but the level of federally-defined take will be determined by USFWS under Section 7 consultation.

Mule Deer

MSCP conservation levels required for this species are limited to preserve-level management through habitat-based and corridor site management plans. All habitats within the Project are suitable for mule deer, and habitat type conversions proposed by the Project would not reduce the amount of suitable habitat. In addition, the Project will likely enhance linkages of the MSCP Areas to the east. Therefore, the Project is consistent with MSCP coverage requirements for this species.

Northern Harrier

MSCP conservation levels required for this species are limited to preserve-level management. Although the Project includes modifications of suitable nesting and foraging habitat for this species, the Project will result in an overall increase of habitat suitability for this species by enhancing wetland functions within the MHPA. MSCP coverage requirements for this species include impact avoidance of 900 feet or the maximum possible distance within the MHPA area. Biological monitoring and/or pre-construction surveys would determine northern harrier occupancy status to ensure that impacts are 900 feet or more from any known nesting location(s). By adhering to 900-foot impact avoidance areas, direct and indirect impacts to this species are considered less than significant. Therefore, the Project is consistent with conservation levels required for coverage of this species under the MSCP.

Orange-throated Whiptail

MSCP conservation levels required for this species are limited to preserve-level management of suitable upland chaparral and scrub habitats. Since the Project footprint is largely confined to natural lands and mostly involves restoration activities, with associated/ancillary facilities in proximity to natural land installed so as to minimize impacts, any edge effects to adjacent vegetation communities would likely be temporal in nature. Under such circumstances, it would not be expected for the proposed construction to contribute to habitat fragmentation or increase the potential for adverse edge effects. In addition, since the Project is focused on lowland habitats consisting of wetland and riparian habitat types that do not support this species, and upland habitat impacts are relegated only to small portions along the western access road and peripheral areas proposed for saltmarsh restoration, the vast majority of surrounding upland habitats will remain as is upon Project completion, leaving preserve-level management for this species intact. Therefore, the Project is consistent with MSCP coverage for this species.

Salt Marsh Skipper

MSCP conservation levels required for this species include preserve-level management of suitable saltmarsh habitats. The Project will increase and enhance existing wetland functions for this species within the MHPA through increased saltmarsh habitat availability and function. Potential impacts to the salt marsh skipper

would be offset through onsite salt marsh restoration activities that would include the planting and/or seeding of saltgrass (*Distichilis spicata*), the larval host plant for this species, as a component. Any individuals lost due to grading and restoration activities during the construction phase are expected to recolonize quickly from adjacent salt marsh habitats, resulting in no permanent loss of populations, nor the function or value of habitats. Exotic species control and lack of public access are expected to further protect this species. As such, the Project is consistent with MSCP coverage requirements for this species.

White-faced Ibis

MSCP conservation levels required for this species are limited to preserve-level management. Although the Project includes potential impacts to suitable habitat for this species, the Project will increase and enhance existing wetland functions within the MHPA. Since the Project footprint is largely confined to natural lands and mostly involves restoration activities, with associated/ancillary facilities in proximity to natural land installed so as to minimize impacts, any edge effects to adjacent vegetation communities would likely be temporal in nature**.** Coverage requirements for this species require impact avoidance of 900 feet or the maximum possible distance within the MHPA area. Biological monitoring and/or pre-construction surveys would determine white-faced ibis occupancy status to ensure that impacts are 900 feet or more from any known nesting location(s). By adhering to 900-foot impact avoidance areas, direct and indirect impacts to this species are considered less than significant. Therefore, the Project is consistent with conservation levels required for coverage of this species under the MSCP.

Southern California Rufous-Crowned Sparrow

MSCP conservation levels required for this species are limited to preserve-level management including maintenance of dynamic processes, such as fire, to perpetuate some open phases of coastal sage scrub with herbaceous components. The Project has a limited impact on upland habitats. The Project is expected to reduce non-native grassland and increase the diversity of native upland and wetland transitional communities that would benefit this species. Therefore, the Project is consistent with MSCP coverage requirements for this species.

American Peregrine Falcon

MSCP conservation levels required for this species are limited to preservation of foraging habitat including no-net-loss of wetlands; nest sites occur outside the MHPA. The Project will result in enhancement of foraging habitat and no-net-loss of wetlands and is therefore consistent with MSCP coverage requirements for this species.

Long-Billed Curlew

MSCP conservation levels required for this species are limited to preservation of foraging habitat, including conservation of grassland habitats and no-net-loss of wetlands. The Project will result in the loss of non-native grassland in favor of restoration of wetland habitats that are expected to be more productive as foraging habitat for the species. The Project results in no-net-loss of wetlands and is consistent with MSCP coverage requirements for this species.

Western Bluebird

MSCP conservation for this species is based on conservation of roosting and foraging habitat and limited loss of beach habitat. The Project provides for the enhancement of native habitats within the MHPA, including no-net-loss of wetlands, and is therefore consistent with MSCP coverage requirements for this species.

California Brown Pelican

MSCP conservation levels required for this species are limited to conservation of habitat with existing large population primarily occurring on public lands east of the MSCP plan area. The Project provides for the enhancement of native habitats within the MHPA and is therefore consistent with MSCP coverage requirements for this species.

Elegant Tern

MSCP conservation levels required for this species are limited to conservation of potential habitat including saltpan and beaches. ASMDs for the species including protection of nesting sites and control of edge effects. The Project provides for the enhancement of native habitats within the MHPA, an increase in tidal influence to support saline habitats, and measures to ensure active nest sites are protected. Therefore, the Project is consistent with MSCP coverage requirements for this species.

Mountain Lion

MSCP conservation levels required for this species are limited to conservation of habitats, including maintaining ecosystem function and processes such as large animal movement. Specific design criteria for linkages and road crossings/under-crossings are required under the City's Subarea Plan. The Project will result in enhancement of conserved habitats and retention of existing movement corridors, particularly in the constrained area adjacent to proposed floodplain enhancement 2. These design features will ensure that the Project is consistent with MSCP coverage requirements for this species.

5.0 Project Effects

The project footprint, including infrastructure improvements and restoration activities, is approximately 114 acres within the 243-acre BSA. The Project proposes to convert the currently degraded marsh system to a restored ecologically sustainable system that will provide an overall improvement in habitat value and function for a wide variety of flora and fauna. Several proposed design features, including floodplain enhancements, access roads, and improved stormwater outfall systems, are included as part of the Project. The design features will collectively serve to improve the existing conditions within the BSA, control adverse watershed conditions, and are required to create conditions that allow for a sustainable tidal salt marsh restoration in the downstream portions of the Project.

5.1 Impact Types

To analyze project effects on biological resources, the restoration, construction, and/or maintenance footprint of each of the Project components was categorized into either resulting in a permanent, temporary or restoration effect. The specific project components are displayed on Figures 5-1a through 5-1i.

Figure 5-1: Proposed Project Overview

Figure 5-1a: Proposed Project Overview

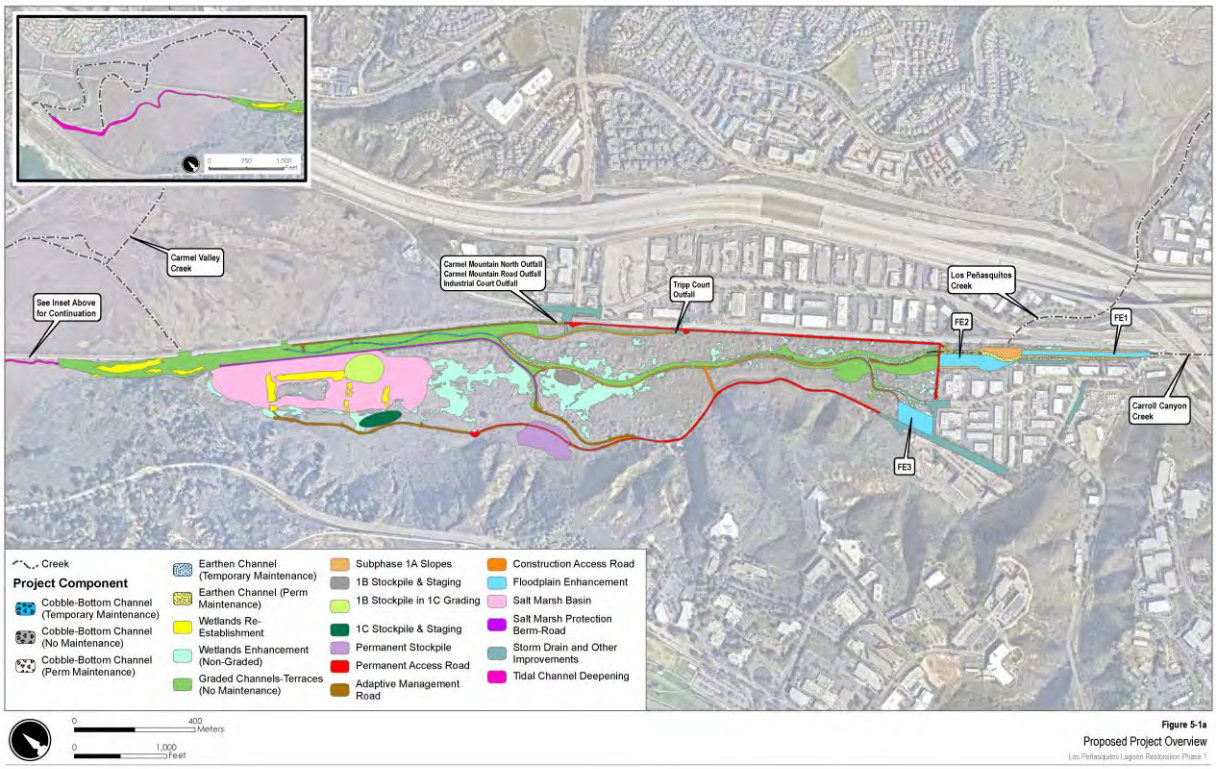


Figure 5-1b: Project Components

Figure 5-1c: Project Components

Figure 5-1d: Project Components

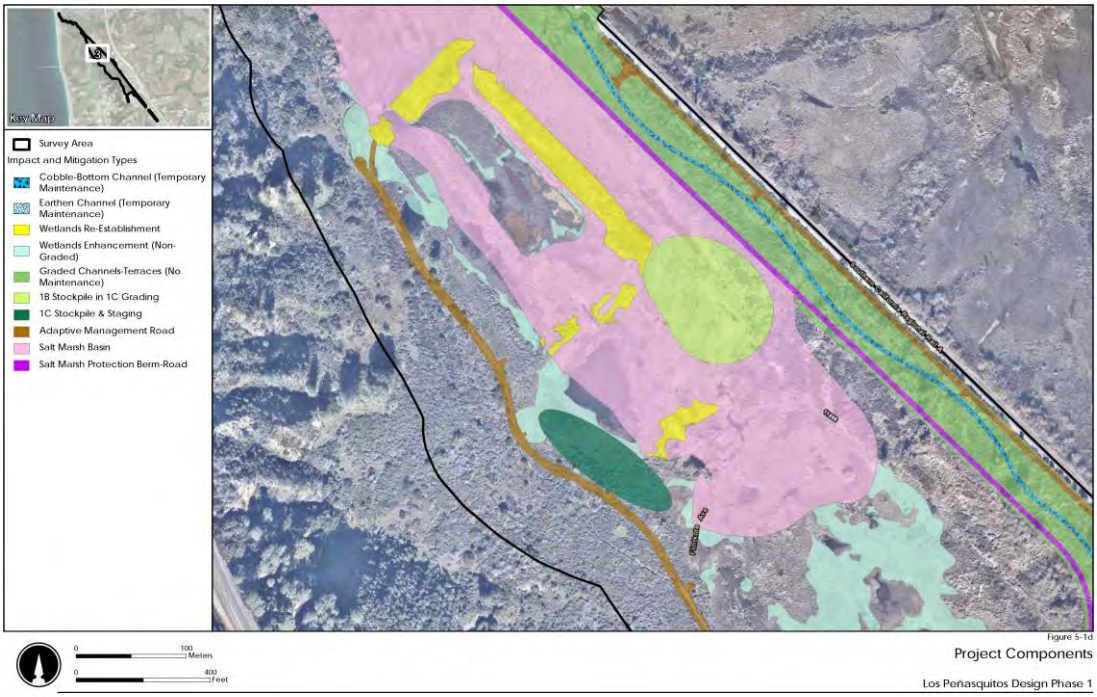


Figure 5-1e: Project Components

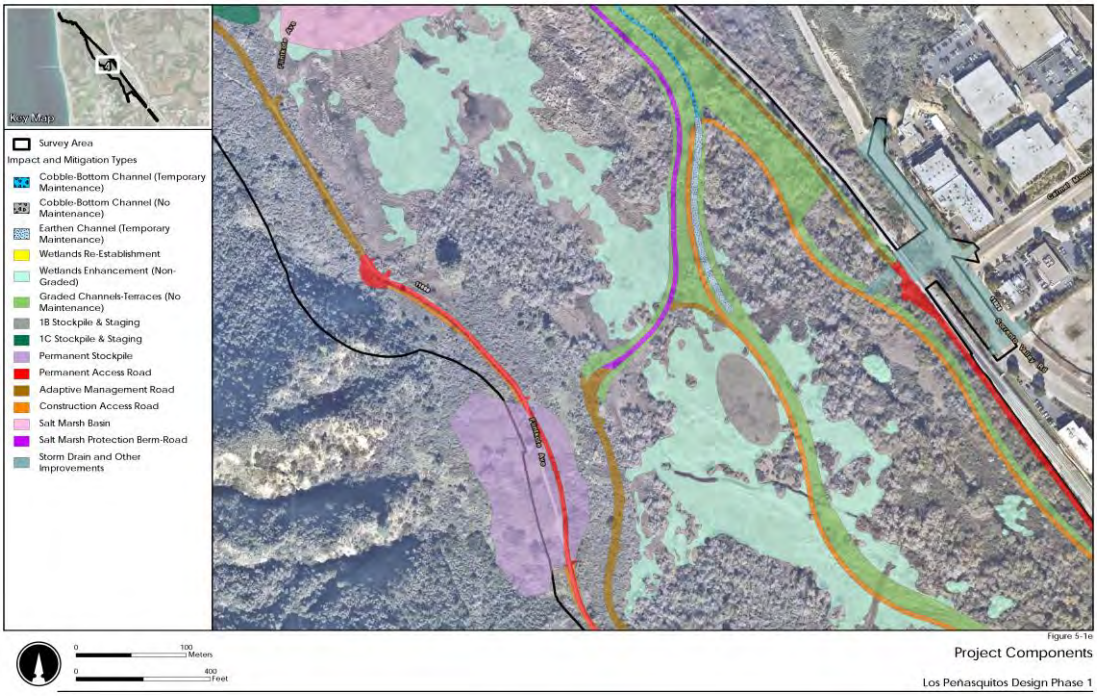


Figure 5-1f: Project Components

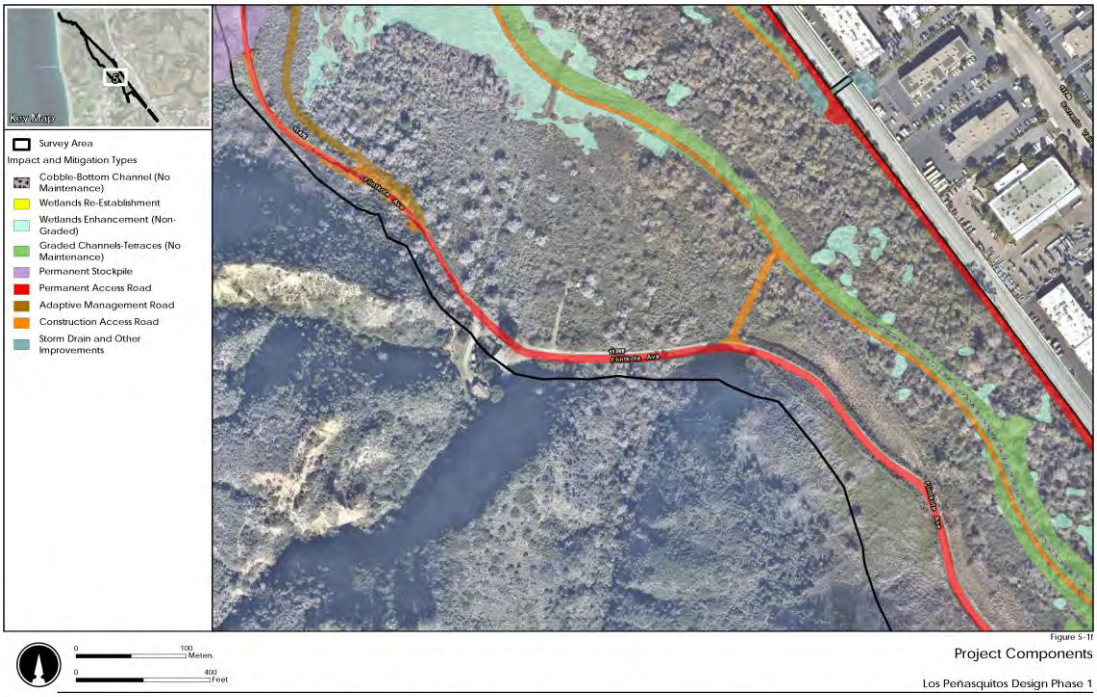


Figure 5-1g: Project Components

Figure 5-1h: Project Components

Figure 5-1i: Project Components

5.1.1 Permanent Impacts

Two types of permanent impacts are proposed:

a) Areas where fill material is proposed that would significantly modify existing conditions. These areas include three Floodplain Enhancement areas, two permanent access roads, and several storm drain improvements.

b) Areas where fill material includes natural cobble lining and permanent, as-needed maintenance is proposed, but no loss of jurisdictional waters would occur. This area is located along the improved Carroll Canyon Creek.

Floodplain Enhancements: While Floodplain Enhancements will support native vegetation after construction, overall vegetative cover is expected to be greatly reduced from current conditions. The Floodplain Enhancements will be lined using articulated blocks that will allow for some vegetation growth and include several gabion structures that will be fully vegetated; thus, these areas will provide some natural functions despite requiring periodic removal of accumulated sediment. One portion of Floodplain Enhancement 3 will have an earthen bottom and therefore higher function, but is still included as a permanent impact.

Permanent Access Roads and Storm Drain Improvements: Access road and storm drain improvements will mostly result in permanent loss of existing vegetation communities and jurisdictional area. The storm drain improvement area include some opportunities for vegetation growth within riprap dissipators and downstream flow areas. These improvements will allow for better management of sediment and trash loading into the Lagoon and therefore result in downstream functional benefits. All of these components are needed as part of the Project providing sediment, freshwater, and trash management that is integral for the success and resiliency of the restoration. Any flood risk reduction benefit is achieved by diversion through piped re-routing of storm flows within existing upland areas.

Channel Rehabilitation and Maintenance: Carroll Canyon Creek, including the confluence with Los Peñasquitos Creek, adjacent to Floodplain Enhancements 1 and 2, will be regraded to ensure stable bed and bank conditions and optimize the removal of sediment load from wet weather storm events. The channel bottom, following rehabilitation grading will be partially lined with cobble (where modeling indicates erosive velocities may occur) and is subject to long-term, as-needed maintenance to ensure effective drainage. While considered a permanent impact, this activity will not result in the loss of jurisdictional area.

5.1.2 Temporary Impacts

Three types of temporary impacts are proposed:

a) Areas that will be graded to achieve the restoration goals of the Project (limiting freshwater influence on the marsh plain during dry weather and small storm events and increasing tidal exchange) and restored immediately following grading.

b) Areas that will be subject to grading or dredging and will be restored but are not expected to have significant functional uplift compared with current conditions either due to their location, proposed cobble-lining, or maintenance during the adaptive management period. These include graded slopes adjacent to floodplain enhancements, the cobble-lined freshwater conveyance channel, the earthen-bottom freshwater conveyance channel subject to maintenance during the adaptive management period, and the one-time tidal channel deepening areas.

c) Areas that will be subject to disturbance during construction and the adaptive management period but will ultimately be restored after certain construction or adaptive management phases are complete. These include stockpiling and staging, construction access roads, and adaptive management roads. Resources within these areas would be subject to some temporal loss.

Restoration Grading Area: The majority of the Project requires grading to modify current hydrologic conditions to restore functions that allow for an increase in saline habitats. These areas include all grading that is not subject to temporary access or maintenance and are not lined with cobble. In sub-phase 1A, this category includes slopes around Floodplain Enhancements 1 and 2 and areas currently supporting invasive species in adjacent areas. In sub-phase 1B, the graded channel terraces (above the cobble-lined or maintained channel bottom), except for areas of construction or adaptive management maintenance/access. In sub-phase 1C, this category includes the majority of the tidal salt marsh restoration area, except areas that currently support uplands or non-wetland waters. Restoration areas are subject to temporary impacts during construction, site preparation, and the plant establishment period.

Temporary Construction Staging/Stockpiling and Adaptive Management: Areas to be restored following construction include stockpiling, staging and grading associated with sub-phases 1B and 1C as well as construction access roads. Each of these components will be restored following construction however there will be an approximately 1-year to 2-year delay between Project initiation and restoration installation. Once adaptive management is complete, adaptive management roads (including on the salt marsh grade control structure), will be restored. These areas will be subject to an approximately 5-year delay between Project initiation and restoration installation.

Permanent Stockpile: Areas to be restored following construction include a permanent stockpile located in existing disturbed uplands adjacent to the Marsh trail. Construction specifications will ensure that topsoil within the permanent stockpile area will consist of soils suitable for restoration of coastal sage scrub.

Channel Lining and Maintenance Areas: Within sub-phase 1B, a portion of the graded freshwater conveyance channel bottoms are proposed to be lined with cobble (where modeling indicates erosive velocities may occur) to minimize vegetation growth. Most of the graded freshwater conveyance channels are subject to potential maintenance during the adaptive management period to ensure that vegetation growth does not prevent the conveyance of dry weather and small storm event flows. These channels are expected to function naturally following the adaptive management period; however due to the cobble-lining treatment and potential maintenance, these areas are considered temporary impacts that may result in temporal loss.

Temporary One-Time Tidal Channel Dredging: The one-time dredging is proposed to deepen the tidal channel from the pinch point to the lagoon inlet to an elevation of −3 feet. This component is restricted to existing open water areas, will not impact adjacent salt marsh vegetation, and therefore will result in only temporary impacts until the channel bottom is recolonized by benthic species.

5.1.3 Restoration

Two types of restoration/enhancement are proposed:

a) Existing upland and non-wetland waters that will be subject to grading to re-establish wetlands (type conversion). These areas are necessary to offset the loss of jurisdictional wetlands/waters associated with structural permanent impacts and are located in the salt marsh restoration area and expanded tidal channel. The loss of upland vegetation communities within this category are considered

permanent impacts because the proposed restoration would type convert these areas to wetlands. Grading of native upland communities to restore wetland communities is generally not allowed unless the area was historically wetland. The majority of the re-establishment is in areas that are historically wetland (former wastewater berms in Subphase 1C); however, the expansion of the tidal channel through the "pinch-point" would convert a hillside where current vegetation is likely consistent with historical conditions. Significant hydrodynamic modeling was conducted to confirm that grading of native upland vegetation in this location is necessary to re-establish sufficient tidal flow volumes to meet the overall TMDL/watershed goal of restoring saline habitats within the Lagoon.

b) Existing disturbed or degraded areas outside of the project grading footprint. These include specific invasive species removal areas identified based on current mapping; primarily stands of giant reed adjacent to grading for freshwater conveyance channels and stands of Italian ryegrass where topsoil removal is required to restore non-tidal salt marsh. Additional enhancement may occur where additional invasive species removal and restoration are identified during construction and habitat restoration monitoring. These areas are expected to consist primarily of invasive species treatment within the understory of existing riparian forest areas but are not currently identified within the project footprint.

The following sections outline the extent of permanent and temporal loss to vegetation communities, jurisdictional resources and special-status species. This section also discusses anticipated adverse edge effects, indirect impacts, temporal loss of MHPA functionality, introduction of invasive plants and cumulative impacts.

5.2 Effects on Sensitive Vegetation Communities

This section is intended to summarize Project effects on sensitive vegetation communities as a result of the proposed design. The significance of impacts is affected by prior permitting and mitigation within the BSA. A 5.3-acre pre-mitigated area related to prior permitted Sorrento Channel maintenance area has been mitigated through successful implementation of the El Cuervo and Famosa Slough mitigation projects and therefore Project components within this area would not result in significant impacts to wetlands. Furthermore, restoration of wetlands within this pre-mitigated area would potentially be eligible as credited mitigation acreage. Permanent impacts and areas that will require ongoing maintenance within the pre-mitigated area are not eligible as credited mitigation acreage.

5.2.1 Direct Effects on Sensitive Vegetation Communities

The project will result in direct effects to sensitive vegetation communities (Tier II and IIIB uplands and wetlands). Any temporary and permanent effects to sensitive vegetation communities not previously mitigated must be mitigated according to federal, state, and local laws and regulations.

Direct Impact Footprint

Project-related construction and restoration activities, would result in the modification of 113.9 acres, either through the permanent loss of resources or functions (18.1 acres), temporary impacts related to construction of restoration components (72.9 acres), or restoration (22.9 acres) (Tables 5-1 and 5-2, Figures 5-2a through 5-2i). Permanent and temporary impacts to wetlands and Tier II and IIIB uplands, outside the pre-mitigated area, are considered **significant impacts** in accordance with the City's Biology Guidelines. No disturbance is proposed in the restoration areas within wetlands other than the removal and treatment of invasive species

and associated seed bank and therefore the acreage of restoration is considered a **less than significant impact**. The restoration areas within Tier II uplands will result in the loss of coastal sage scrub in order to create wetland hydrology and function and is considered a **significant impact.** The loss of Tier IIIB uplands in restoration areas will result in the loss of non-native grassland, but this impact is considered **less than significant** because this community is primarily composed of non-native species, is not considered rare, and following wetland restoration, these areas will support a greater diversity of species. All impacts within the pre-mitigated area and all impacts to Tier IV land cover are considered **less than significant** due to the fact that any sensitive resources within these areas have already been replaced through successful off-site habitat mitigation and Tier IV land covers do not support sensitive biological resources.

Table 5-1: Impacts to Wetlands with the Project – Inside and Outside of the MHPA

City Habitat Types	Inside MHPA (acres)			Outside MHPA (acres)			Total
	Perm.	Temp.	Restore	Perm.	Temp.	Restore	
Outside Pre-Mitigated Area	**3.58**	**61.01**	**17.73**	**3.33**	**1.28**	**0.22**	**87.15**
Salt Marsh/Panne[a]	0.04	5.53					5.57
Salt Marsh – Disturbed[b]		25.65	15.55				41.20
Riparian Forest	2.96	13.77		2.62	0.77		20.12
Riparian Scrub[c]	0.06	6.04		0.15			6.26
Freshwater Marsh	0.04	4.15		0.04			4.22
Freshwater Marsh – Disturbed		0.12					0.12
Natural Flood Channel[d]		4.70		0.03	0.34		5.08
Disturbed Wetland – Invasive[e]	0.48	1.05	2.18	0.49	0.17	0.22	4.59
Within Pre-Mitigated Area	**1.39**	**3.07**	**0.03**	**0.42**	**0.31**	**0.05**	**5.27**
Riparian Forest	0.36	1.92		0.22	0.09		2.60
Freshwater Marsh	0.29	0.17		0.06			0.52
Natural Flood Channel[d]	0.61	0.70		0.08	0.19		1.57
Disturbed Wetland – Invasive[e]	0.13	0.28	0.03	0.06	0.03	0.05	0.57
Total	**4.97**	**64.08**	**17.76**	**3.75**	**1.59**	**0.27**	**92.42**

[a] consists of alkali meadow, alkali seep, coastal brackish marsh, saltpan/mudflats, and southern coastal salt marsh vegetation communities
[b] consists of southern coastal salt marsh – degraded vegetation community
[c] consists of mulefat scrub and southern willow scrub vegetation communities
[d] consists of non-vegetated channel and open water land covers
[e] consists of arundo, disturbed wetland, pampas grass, and tamarisk vegetation communities

Table 5-2: Impacts to Uplands with the Project – Inside and Outside of the MHPA (all impacts occur outside of the Pre-Mitigated Area)

City Habitat Types	Inside MHPA (acres)			Outside MHPA (acres)			Total
	Perm.	Temp.	Restore	Perm.	Temp.	Restore	
Tier II							
Coastal sage scrub[a]	0.60	4.96	1.49	0.02			7.07
Coastal sage scrub – disturbed	1.08		0.13	0.26		0.03	1.49
Tier IIIB							
Non-native grassland	0.23	1.83	2.86	0.01			4.92
Tier IV							
Disturbed Land[c]	2.47	0.41	0.39	4.74		0.02	8.03

Table 5-2: Impacts to Uplands with the Project – Inside and Outside of the MHPA (all impacts occur outside of the Pre-Mitigated Area)

City Habitat Types	Inside MHPA (acres)			Outside MHPA (acres)			Total
	Perm.	Temp.	Restore	Perm.	Temp.	Restore	
Total	4.38	7.20	4.87	5.03	0.00	0.05	21.53

a consists of blue elderberry series and Diegan coastal sage scrub vegetation communities

b consists of developed, disturbed habitat, and iceplant land covers/vegetation community

Figure 5-2: Impact and Mitigation Types and Existing Vegetation Communities

Figure 5-2a: Impact and Mitigation Types and Existing Vegetation Communities

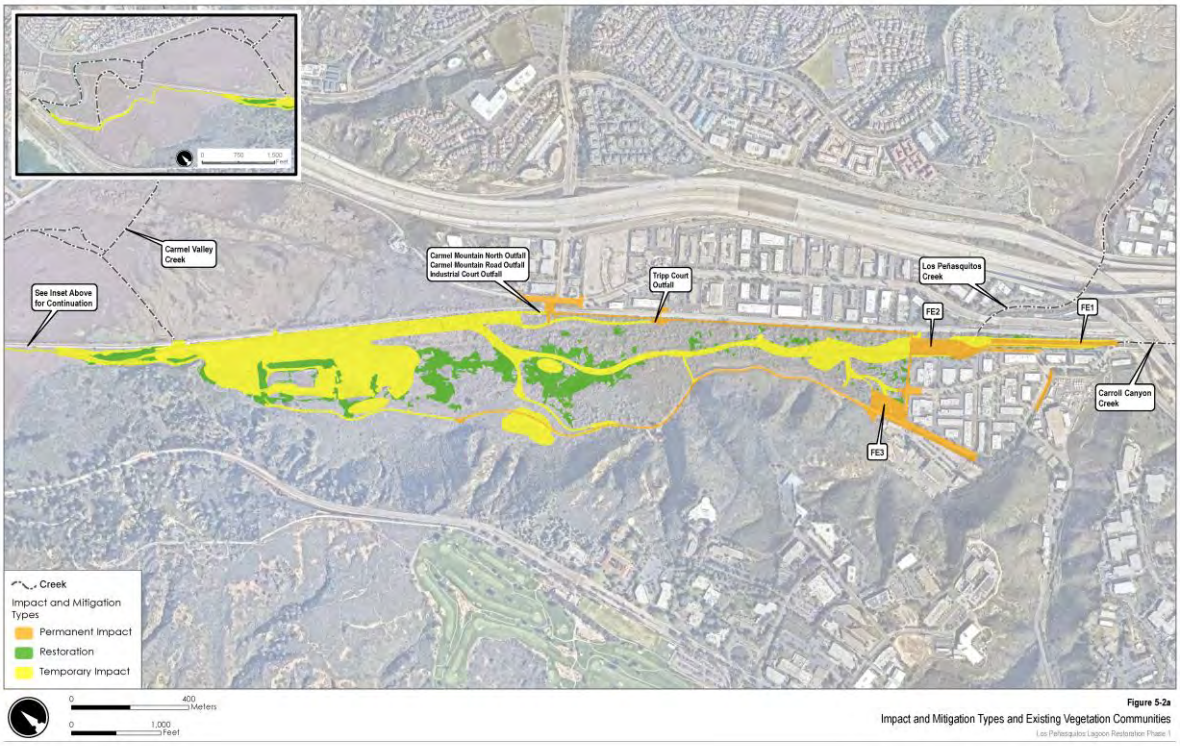


Figure 5-2b: Impact and Mitigation Types and Existing Vegetation Communities

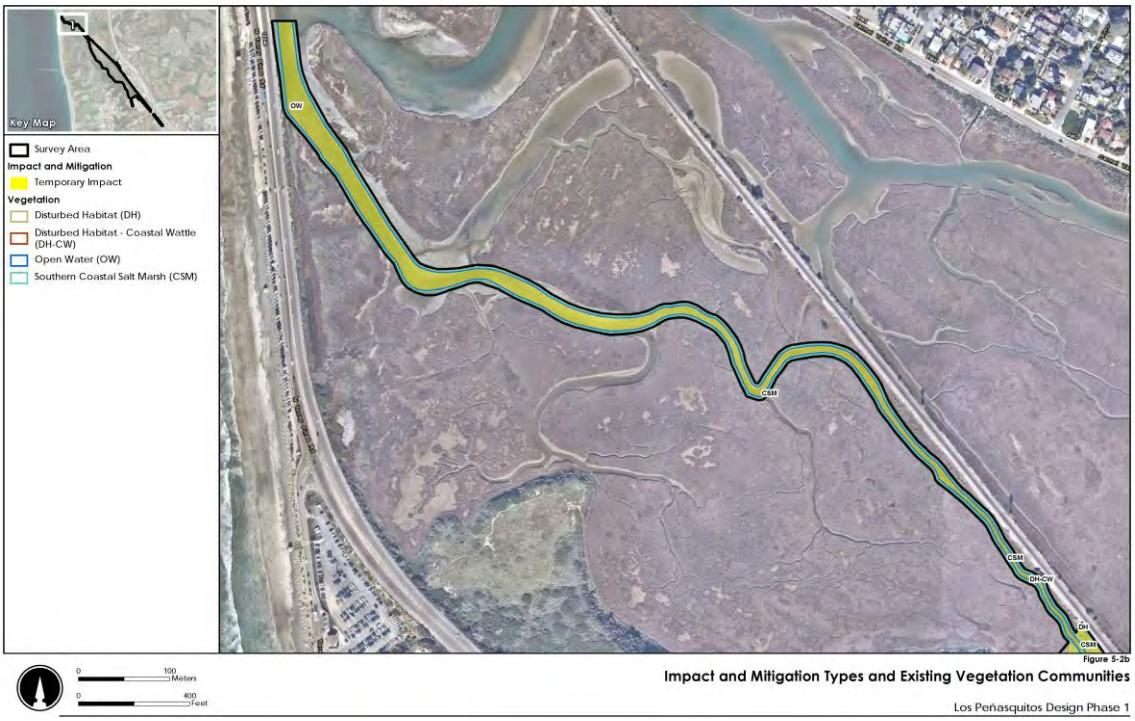


Figure 5-2c: Impact and Mitigation Types and Existing Vegetation Communities

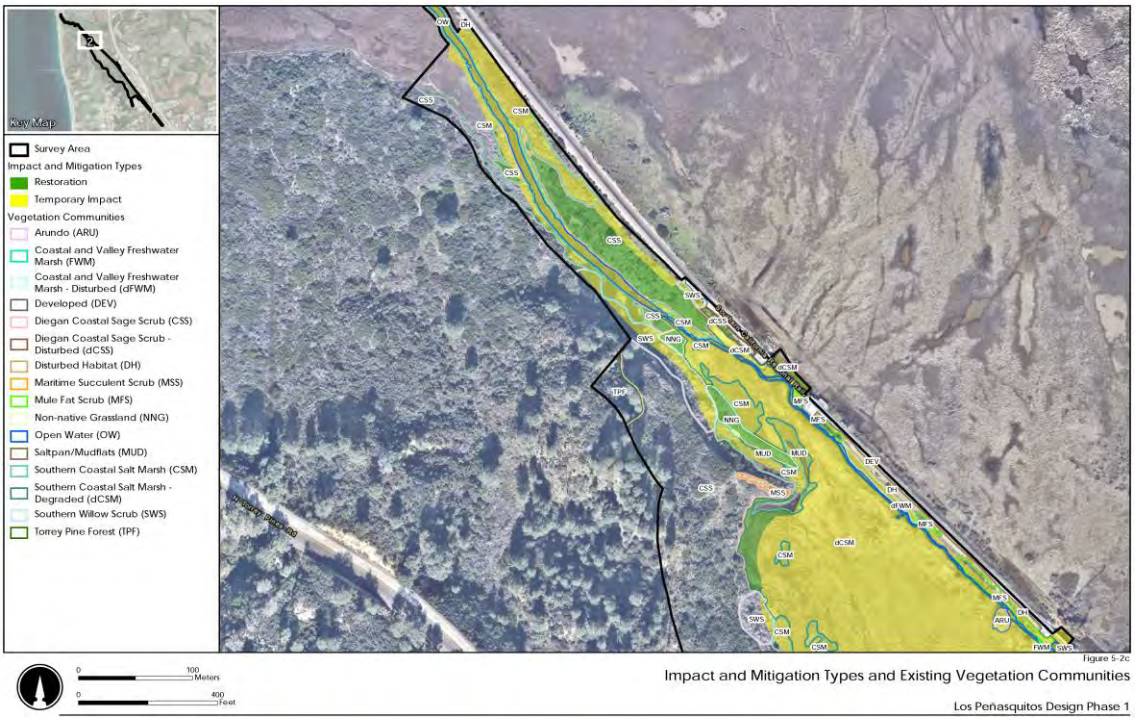


Figure 5-2d: Impact and Mitigation Types and Existing Vegetation Communities

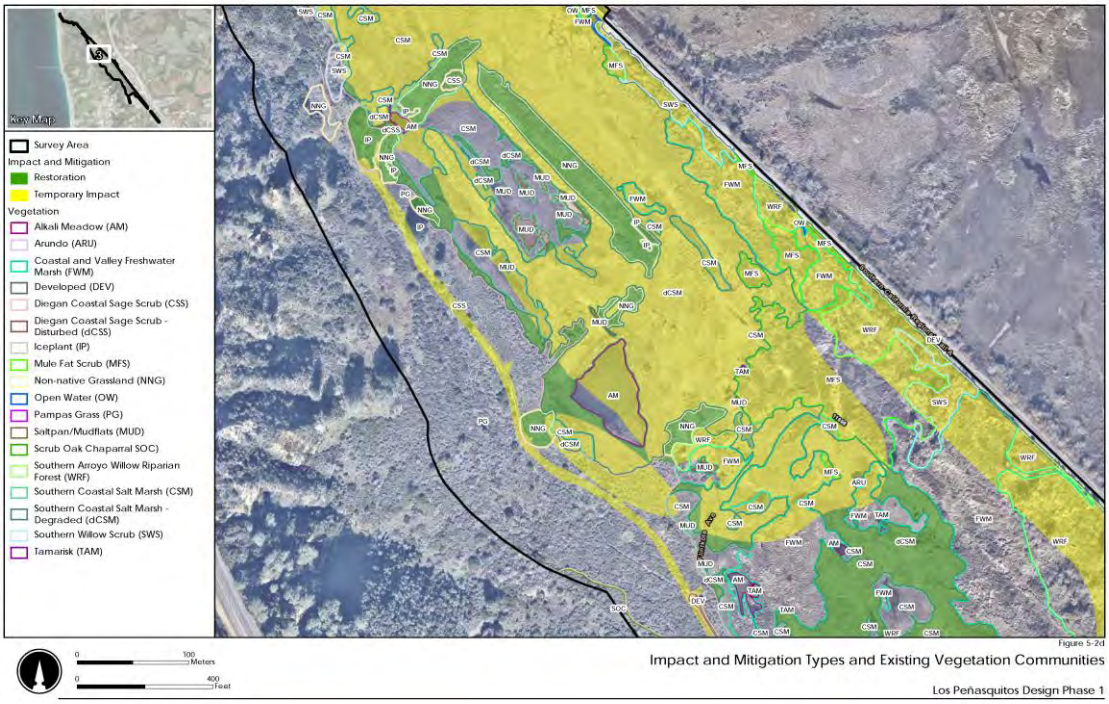


Figure 5-2e: Impact and Mitigation Types and Existing Vegetation Communities

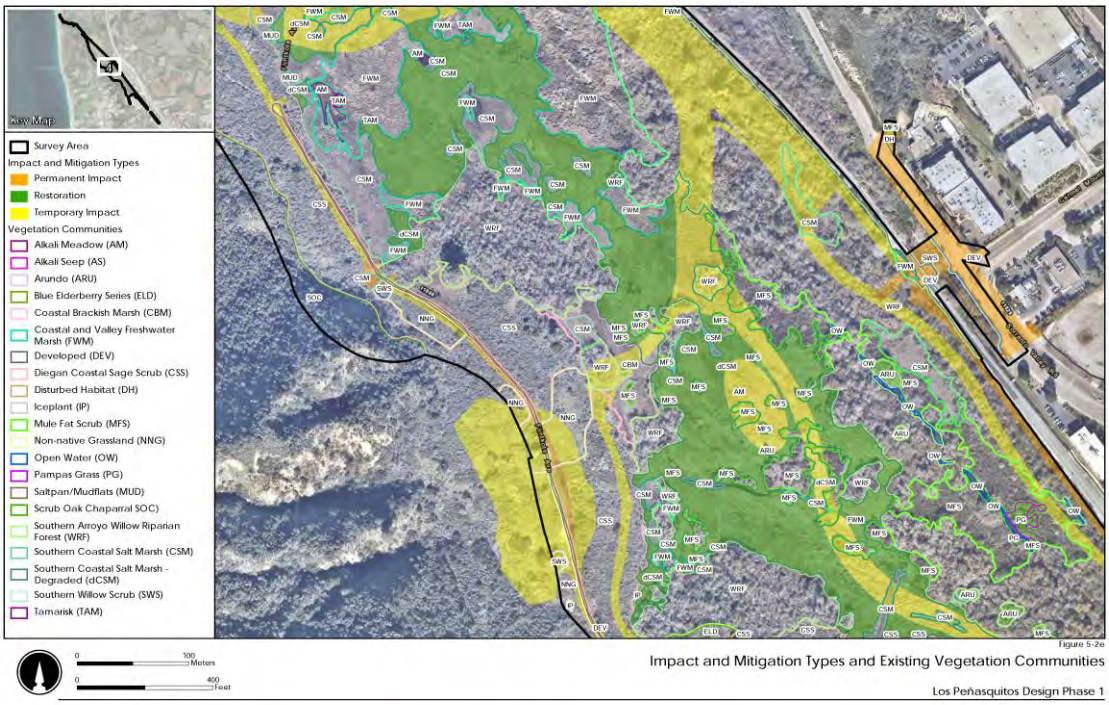


Figure 5-2f: Impact and Mitigation Types and Existing Vegetation Communities

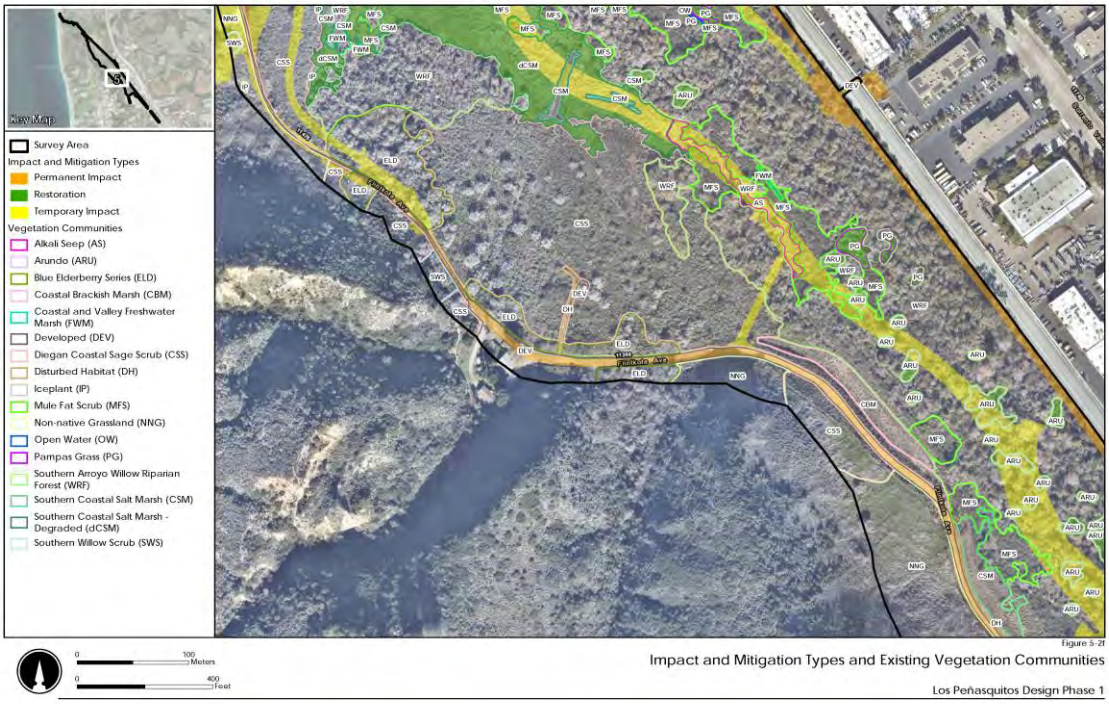


Figure 5-2g: Impact and Mitigation Types and Existing Vegetation Communities

Figure 5-2h: Impact and Mitigation Types and Existing Vegetation Communities

Figure 5-2i: Impact and Mitigation Types and Existing Vegetation Communities

Habitat Conversion

As discussed in Section 5.0, in addition to direct effects on existing vegetation communities based on the Project footprint/limits, the design of the Project will result in habitat type conversions, by design. This habitat conversion is a permanent impact. To understand the net result of Project design on existing vegetation communities, a post-Project vegetation community map was prepared as part of the Restoration Plan/HMMP. Table 5-3 provides a comparison of pre- and estimated post-Project vegetation community acreage within the temporary impact and restoration areas of the Project (95.8 acres). The permanent impact areas are not included since these areas are subject to ongoing impacts from maintenance or will not support vegetation and will be offset by deduction of Project-generated mitigation acreage based on required ratios (see Section 6.0).

Table 5-3: Vegetation Conversion

Vegetation Community Pre-Restoration	Vegetation Community Post Restoration					
	Salt Marsh/ Panne	Riparian Habitat	Freshwater Marsh	Natural Channel	Coastal Sage Scrub	Total
Salt Marsh/Panne	4.45	0.30	0.38	0.35	0.06	5.53
Salt Marsh - Disturbed	37.82	1.16	1.18	1.03		41.20
Riparian Forest	0.43	11.34	3.43	1.35		16.55
Riparian Scrub	3.26	1.80	0.62	0.28	0.09	6.06
Freshwater Marsh	2.24	1.40	0.47	0.20		4.32
Freshwater Marsh - Disturbed	0.12					0.12
Natural Flood Channel	0.33	0.55	0.32	4.72		5.92
Disturbed Wetland - Invasive	0.16	3.26	0.44	0.13		3.99
Coastal Sage Scrub	1.55	0.55		0.04	4.30	6.45
Coastal Sage Scrub - Disturbed	0.03	0.08			0.05	0.16
Non-Native Grassland	2.75	0.01		0.01	1.91	4.68
Disturbed Land	0.49	0.03	0.02	0.01	0.23	0.83
Total	**53.64**	**20.49**	**6.87**	**8.13**	**6.65**	**95.81**

Note: This table does not include the 18.13 acres of permanent impacts identified in Tables 5-1 and 5-2.

As indicated in Table 5-3, the restoration components of the Project (i.e., not including permanent impacts that are mitigated at a ratio) would result in a net loss of 2.1 acres of riparian habitat and 4.7 acres of nonnative grassland. The Project would result in the net gain of 6.9 acres of salt marsh/panne, 2.4 acres of freshwater marsh and 2.2 acres of natural channel. Overall, the net effect on City wetland acreage is an approximately 9.4-acre gain. This acreage gain (i.e., no net loss), as well as the functional lift and increase in rare communities, reduces the loss of riparian habitat and non-native grassland through type conversion to **less than significant**. The conversion of non-native grassland to native vegetation communities, is a common practice in habitat mitigation and restoration and clearly benefits more rare vegetation communities and associated species. The conversion of riparian habitat to salt marsh habitat is not common but is a tradeoff that has been thoroughly vetted by stakeholders and regulators in the watershed as an appropriate response to human-caused habitat type conversion over the past several decades and more consistent with natural, historic ecosystem function. No net loss of coastal sage scrub would occur as a result of these temporary and restoration impact areas.

5.2.2 Indirect Effects on Sensitive Vegetation Communities

Implementation of the Project may indirectly affect sensitive riparian and upland vegetation communities located adjacent to the disturbance footprint. Indirect effects to these vegetation communities could include fugitive dust, hydrologic changes (e.g., overspray, erosion), and trampling from increased human presence in the area during the restoration phases. However, these indirect effects would be eliminated or reduced through the implementation of avoidance and minimization measures described in Section 7. With implementation of avoidance and minimization measures, indirect effects on sensitive vegetation communities related to construction and restoration would be **less than significant**.

5.3 Project Effects on Jurisdictional Resources

Project-related effects to jurisdictional resources include permanent and temporary impacts associated with floodplain enhancement, salt marsh restoration, access road construction, outfall improvements, and enhancement areas. Similar to the analysis above, project components are categorized as resulting permanent impacts, temporary impacts, or restoration. Permanent impacts are further divided into those that will result in a loss of jurisdictional area or significant loss of function (i.e., permanent access roads, outfall improvements, and floodplain enhancements) and additional permanent impacts where the loss of function is expected to be limited (i.e., re-grading, cobble-lining, and permanent as-needed maintenance of Carroll Canyon Creek). Temporary impacts are further divided into those that will be restored within one year of impact and those that may result in greater temporal loss (i.e., construction and adaptive management roads, staging and stockpile areas). Similar to the analysis above, impacts/restoration acreages are provided both outside and within the pre-mitigated area.

5.3.1 Direct Effects on Jurisdictional Resources

The Project would result in direct impacts to jurisdictional waters of the U.S., waters of the State, and/or the City of San Diego and Coastal Commission wetlands. Direct impacts to City of San Diego and Coastal Commission wetlands are described in Section 5.2 and enumerated in Table 5-1. Jurisdictional boundaries for USACE and RWQCB do not include all wetlands defined by the City of San Diego and Coastal Commission but all wetlands defined by the City of San Diego and Coastal Commission are under the jurisdiction of CDFW. The jurisdiction of USACE/RWQCB and CDFW extends into some Tier II, IIIB, and IV areas as defined by the City of San Diego. Table 5-4 provides acreages for USACE/RWQCB/CDFW jurisdictional areas and CDFW-only jurisdictional areas (Figures 5-3a through 5-3i and Figures 5-4a through 5-4i).

Table 5-4: Impacts to Jurisdictional Resources with the Project – Inside and Outside of the Pre-Mitigated Area

Jurisdictional and Non-Jurisdictional Areas	Permanent Impacts		Temporary Impacts		Restoration (Re-establishment & Enhancement)	Total
	Permanent Structures	Permanent Channel Maintenance	No Delay in Restoration Implementation	Temporal or Functional Loss		
Outside Pre-Mitigated Area	**15.49**	**0.84**	**51.96**	**17.33**	**22.86**	**108.68**
USACE/RWQCB/ CDFW	4.60	0.77	50.93	10.74	20.50	87.53
CDFW	1.68	0.07	1.03	0.05	2.12	4.95

Table 5-4: Impacts to Jurisdictional Resources with the Project – Inside and Outside of the Pre-Mitigated Area

Jurisdictional and Non-Jurisdictional Areas	Permanent Impacts		Temporary Impacts		Restoration (Re-establishment & Enhancement)	Total
	Permanent Structures	Permanent Channel Maintenance	No Delay in Restoration Implementation	Temporal or Functional Loss		
Within Pre-Mitigated Area	**1.43**	**0.38**	**2.57**	**0.80**	**0.09**	**5.27**
USACE/RWQCB/ CDFW	1.41	0.38	2.51	0.80	0.02	5.11
CDFW	0.02		0.06		0.07	0.16
Total	**16.92**	**1.22**	**54.53**	**18.13**	**22.95**	**113.95**

Figure 5-3: Impact and Mitigation Types and USACE/RWQCB Jurisdiction Areas

Figure 5-3a: Impact and Mitigation Types and USACE/RWQCB Jurisdiction Areas

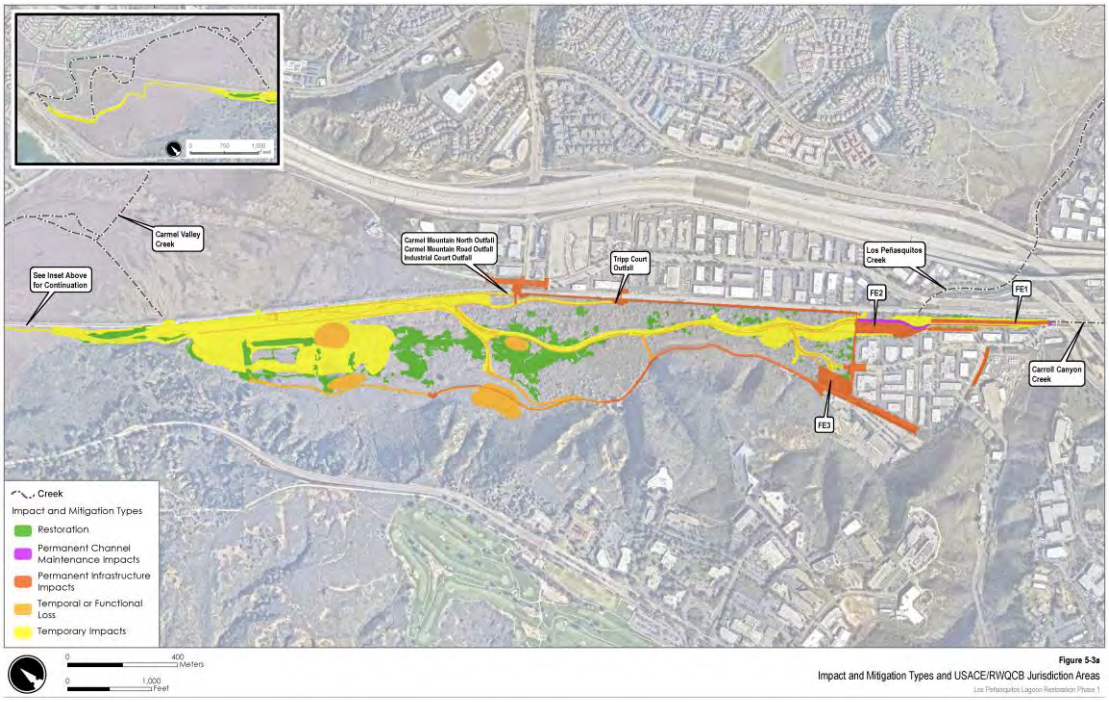


Figure 5-3b: Impact and Mitigation Types and USACE/RWQCB Jurisdiction Areas

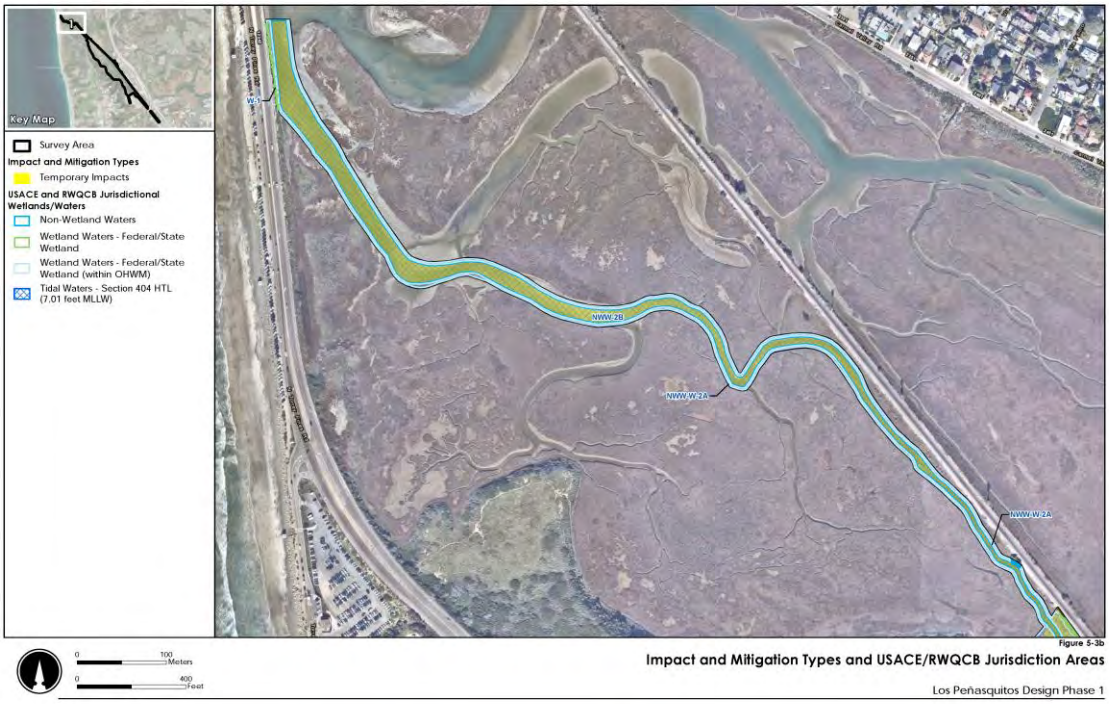


Figure 5-3c: Impact and Mitigation Types and USACE/RWQCB Jurisdiction Areas

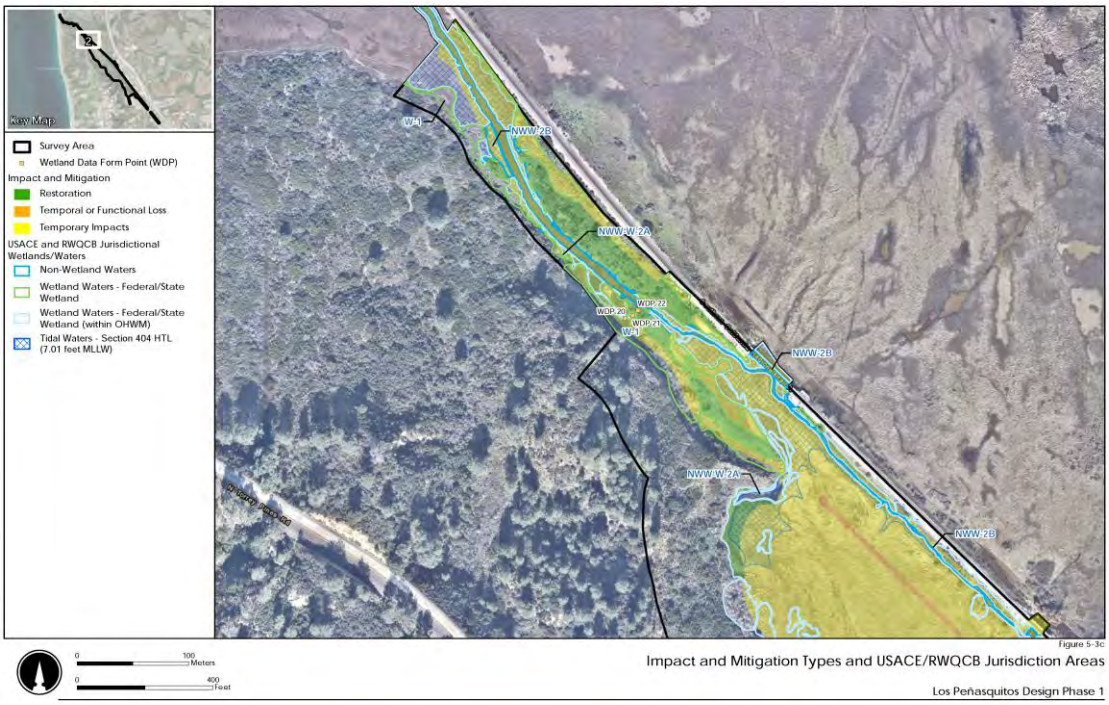


Figure 5-3d: Impact and Mitigation Types and USACE/RWQCB Jurisdiction Areas

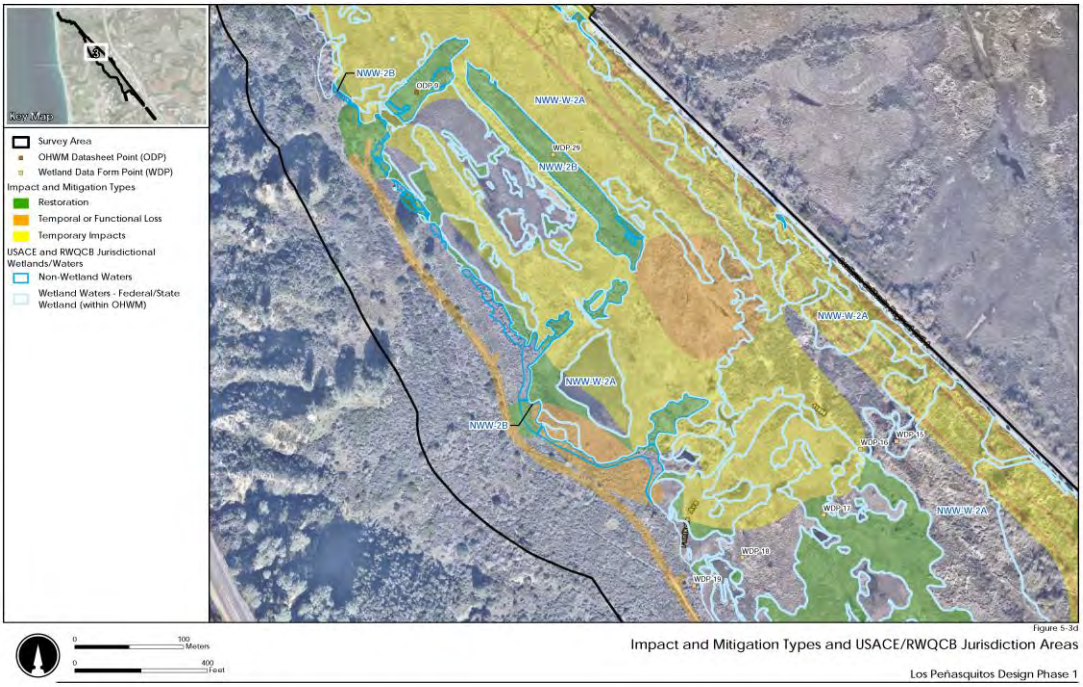


Figure 5-3e: Impact and Mitigation Types and USACE/RWQCB Jurisdiction Areas

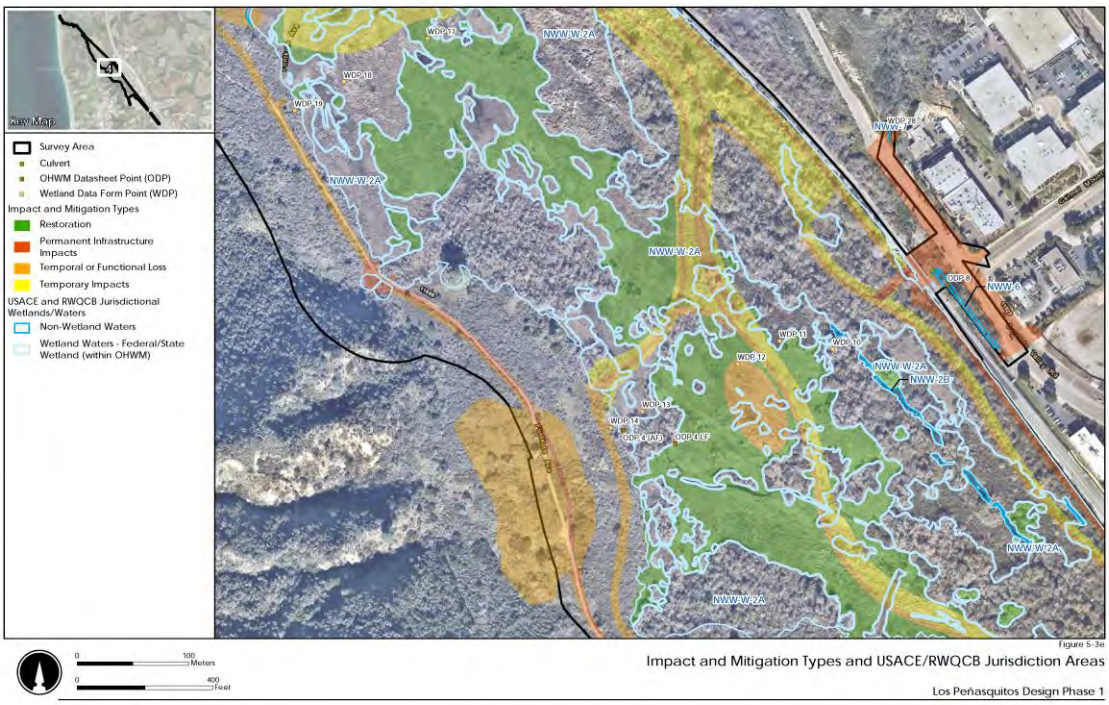


Figure 5-3f: Impact and Mitigation Types and USACE/RWQCB Jurisdiction Areas

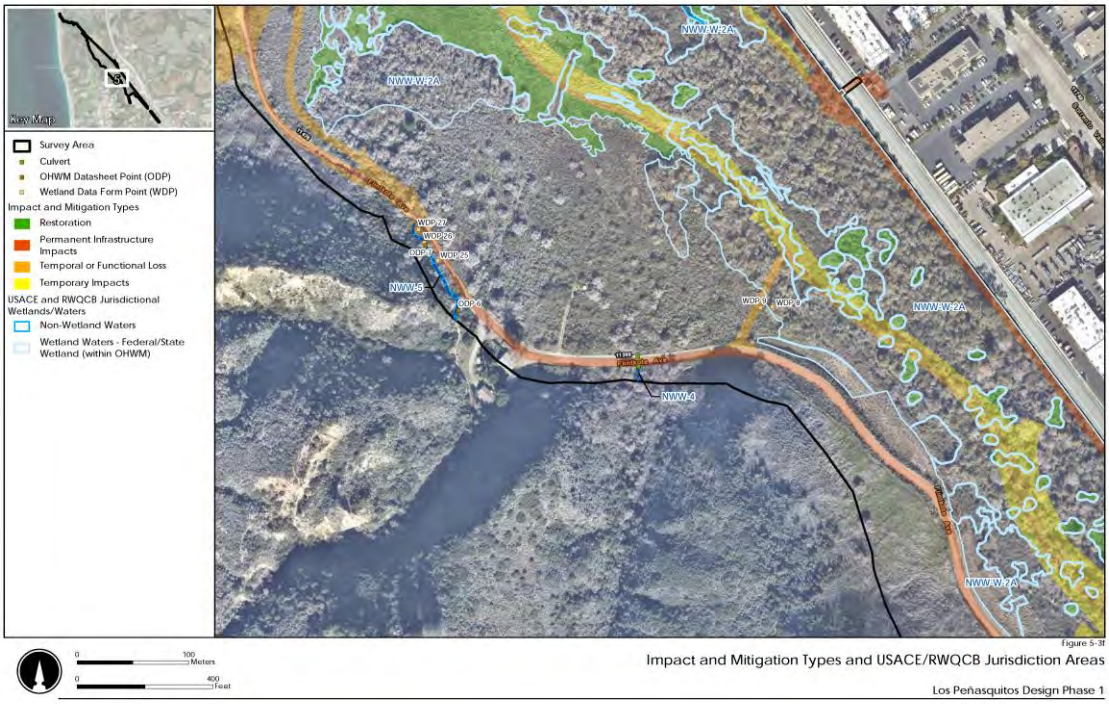


Figure 5-3g: Impact and Mitigation Types and USACE/RWQCB Jurisdiction Areas

Figure 5-3h: Impact and Mitigation Types and USACE/RWQCB Jurisdiction Areas

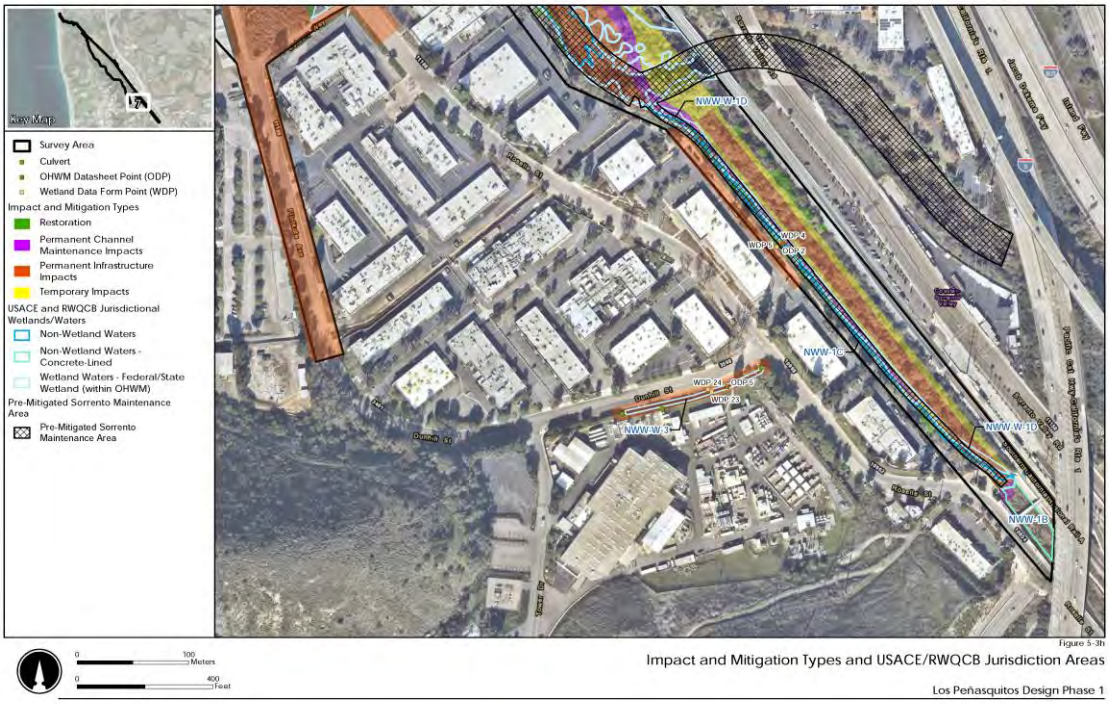


Figure 5-3i Impact and Mitigation Types and USACE/RWQCB Jurisdiction Areas

Figure 5-4: Impact and Mitigation Types and CDFW, CCC, and City Jurisdictional Areas

Figure 5-4a: Impact and Mitigation Types and CDFW, CCC, and City Jurisdictional Areas

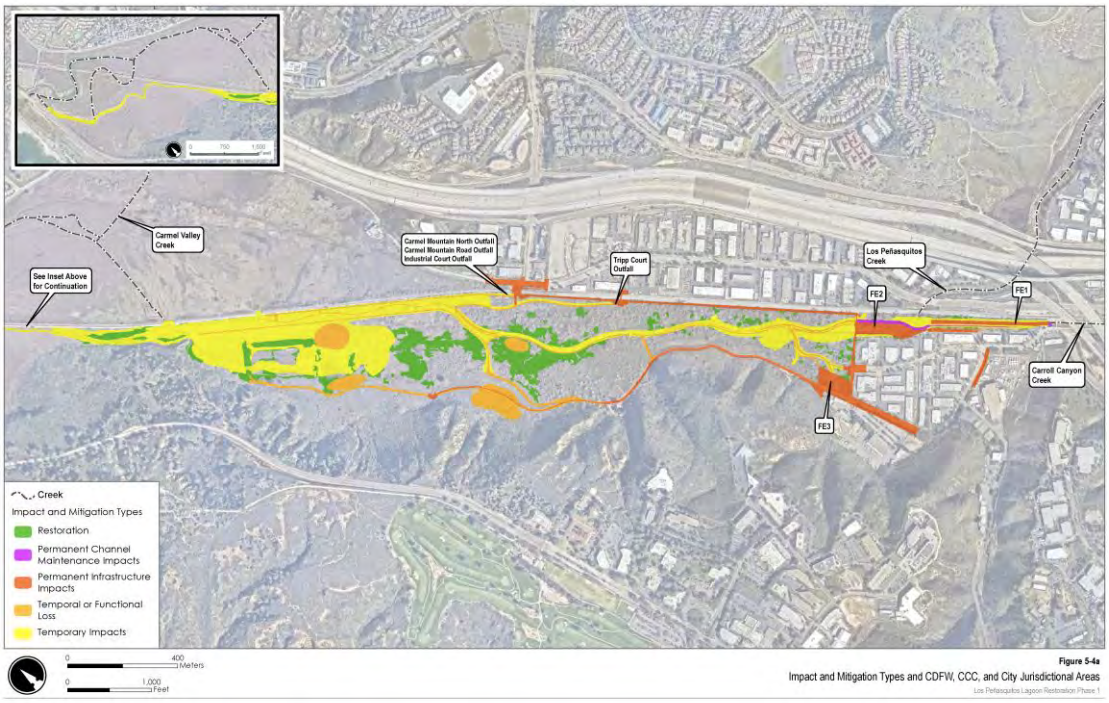


Figure 5-4b: Impact and Mitigation Types and CDFW, CCC, and City Jurisdictional Areas

Figure 5-4c: Impact and Mitigation Types and CDFW, CCC, and City Jurisdictional Areas

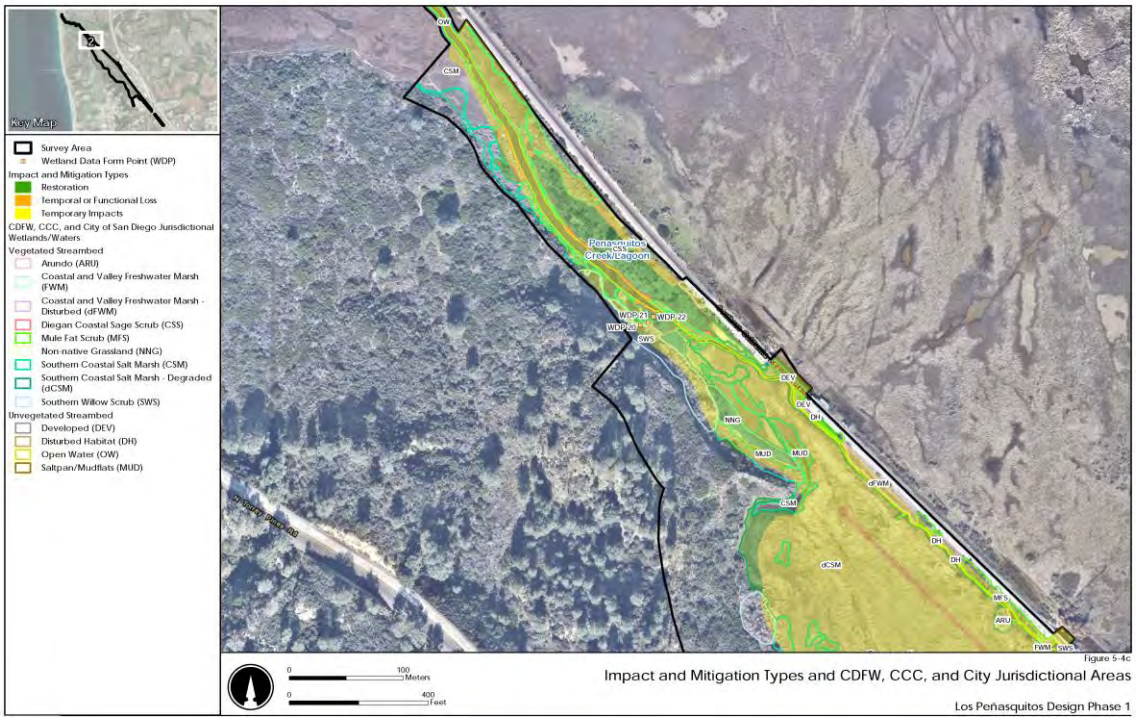


Figure 5-4d: Impact and Mitigation Types and CDFW, CCC, and City Jurisdictional Areas

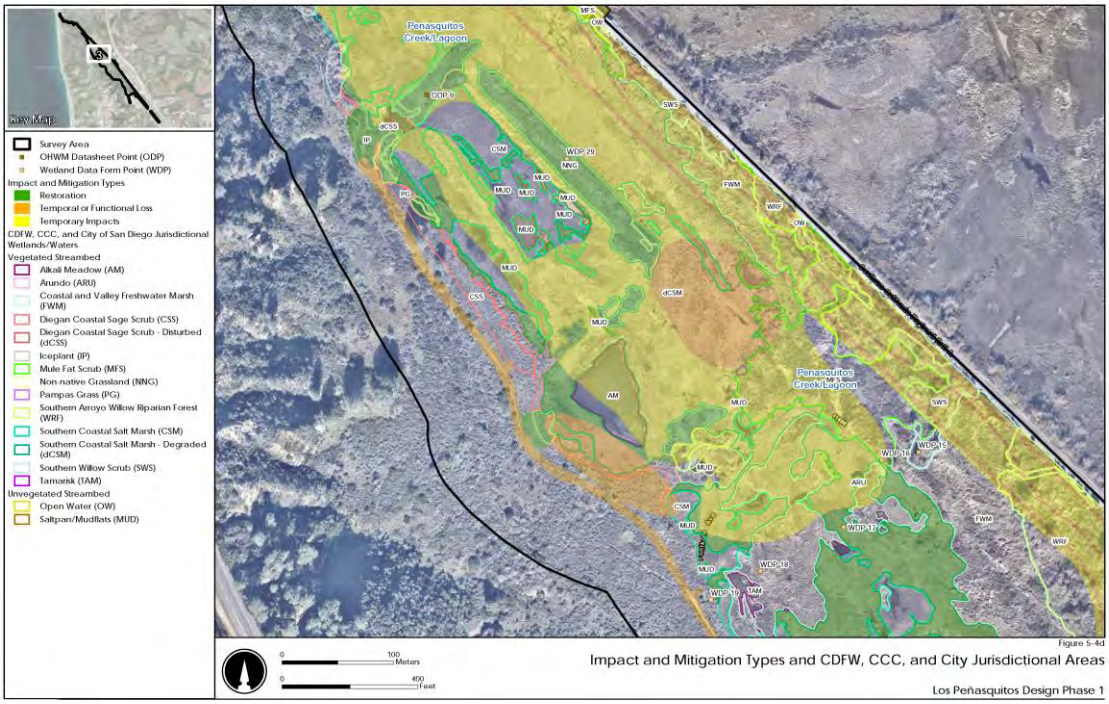


Figure 5-4e: Impact and Mitigation Types and CDFW, CCC, and City Jurisdictional Areas

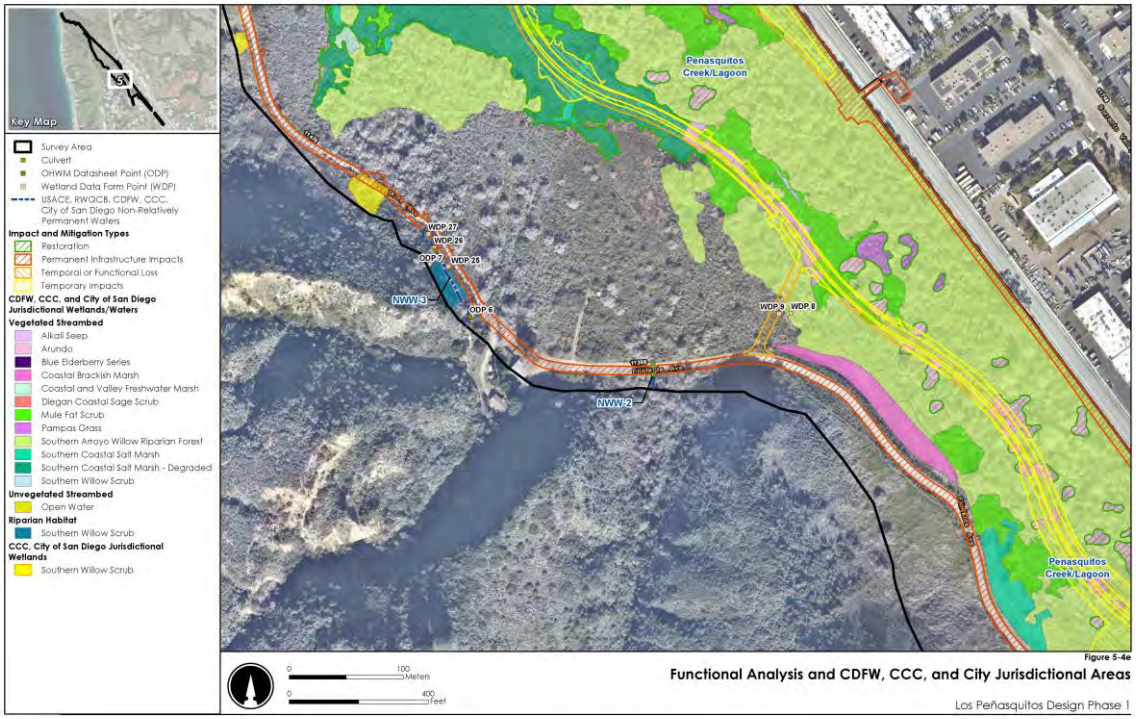


Figure 5-4f Impact and Mitigation Types and CDFW, CCC, and City Jurisdictional Areas

Figure 5-4g: Impact and Mitigation Types and CDFW, CCC, and City Jurisdictional Areas

Figure 5-4h: Impact and Mitigation Types and CDFW, CCC, and City Jurisdictional Areas

Figure 5-4i Impact and Mitigation Types and CDFW, CCC, and City Jurisdictional Areas

All proposed activities (permanent impacts, temporary impacts, and restoration activities) within jurisdictional areas require permit authorizations from those agencies. The determination of which activities require compensatory mitigation offset will be determined by each of those agencies and may consider the type of permanent impacts, potential for temporal loss within temporary impacts areas, and risk/uncertainty of proposed restoration.

Under CEQA, the analysis of significant direct impacts to jurisdictional areas is mostly addressed in Section 5.2.1 under the analysis of City of San Diego and Coastal Commission-defined wetlands. With consideration to jurisdictional resources specifically, if the project were to result in the net-loss of jurisdictional areas, this would be considered a **significant impact** to jurisdictional resources. The Project includes permanent structures (permanent access roads, outfall structures, and floodplain enhancements) that will result in the loss of 4.6 acres of USACE/RWQCB/CDFW jurisdictional area or significant function, outside the pre-mitigated area (Table 5-4).

5.3.2 Indirect Effects on Temporary Effects on Jurisdictional Resources

Temporary indirect effects on jurisdictional resources may result from the degradation of waterways through the accidental discharge or oil, grease, and/or chemicals that may temporarily impound and/or degrade the volume, character, and/or quality of flows within the Lagoon during construction. Furthermore, potentially significant permanent indirect effects that may result from Project development include downstream habitat loss, alteration, or conversion resulting from the widening and alteration of the flow regime within the Lagoon; however, the Project design has considered a range of scenarios to preclude this possibility, so no such impacts are anticipated. Additionally, the BSA is host to invasive species such as giant reed which, if transported off site, may result in long term conversion or degradation of additional habitat areas. Again, avoidance and minimization measures included in Section 7.0 would reduce these potential adverse indirect effects to **less than significant**.

5.3.3 Evaluation of City Wetland Effects Within the Coastal Overlay Zone

The City's Biology Guidelines (2018) and the ESL Regulations state that impacts to wetlands should be avoided and unavoidable impacts should be minimized to the maximum extent practicable. Project implementation would result in the disturbance and modification of City-regulated wetlands within the Coastal Overlay Zone. Since Project-related disturbance to City wetlands would result from proposed large-scale wetland restoration with incidental public service infrastructure improvements that are required to support long-term sustainable wetland restoration, the proposed disturbance to City wetlands is permissible under Section 143.0130(d) of the ESL. In order to be authorized under the ESL guidelines, a project must: (1) demonstrate that impacts to wetlands are unavoidable; (2) present the least environmentally damaging alternative; (3) ensure that the project provides adequate mitigation; and (4) maintain adequate buffers to ensure wetland function. This Project meets all four criteria and is therefore permissible under ESL guidelines.

5.3.3.1 Analysis of Wetland Avoidance Feasibility

Under the wetland avoidance alternative, all City wetland areas would be avoided. The upland areas of the Project would be modified, but core elements of the Project would not be completed, including major components of sub-phase 1A, 1B and 1C. Components of the Project eliminated under the wetland avoidance alternative include the following:

- Floodplain Enhancement 1

- Floodplain Enhancement 2
- Floodplain Enhancement 3
- Dunhill Ditch Enhancement
- Riparian and Non-Tidal Salt Marsh Habitat Enhancement
- Outfall improvements at Flintkote Avenue, Industrial Court, Carmel Mountain Road North, and Tripp Court outfalls
- Construction of new freshwater management channels including outfall construction at the "pinch point"
- Sediment removal, grubbing, and fine grading as part of habitat restoration during each sub-phase (1A, 1B and 1C)
- Construction of long-term access roads for maintenance
- Dredging extensions of tidal channel to improve tidal influence

With the elimination of the components of the Project above, core goals of the Project would not be attained and would eliminate the potential for long-term improvements to the Lagoon's ecological function. In particular, without floodplain enhancements, it is uncertain whether sub-phases 1B and 1C could be feasibly developed in a way that ensures long-term sustainability. Therefore, it is not feasible to avoid wetlands to achieve the Project goals of a restored wetland/marsh system with higher value and function when compared to the degraded conditions that currently exist within the BSA.

5.3.3.2 Los Peñasquitos Phase 1 Alternative Analysis

Alternative Analysis in Enhancement Plan and Programmatic EIR

Phase 1 is part of a two-phase Project. Phases are derived from the selected alternative in the Updated Los Peñasquitos Lagoon Enhancement Plan (LPLEP, 2016). Phase 1 and Phase 2 of the Lagoon Enhancement will involve distinct areas of the upper Lagoon. Phase 1 of the Lagoon Enhancement will take place southwest of the railroad berm as shown in Figure 1-4. It will include restoration of historic salt marsh, sediment reduction measures, and freshwater management. Phase 1 will restore approximately 49 acres of salt marsh habitat with an estimated construction completion timeline of 2024-2028 followed by 5 years of adaptive management and monitoring. Phase 2 is a future phase located to the northeast (opposite side to Phase 1) of the railroad embankment. The Phase 2 Lagoon Enhancement design will be based on the adaptive management and monitoring of the Phase 1 project and on further assessment of the effects of sea level rise. The finding of the adaptive management of Phase 1 will inform the approach to meet the compliance target of moving toward 84 acres of salt marsh restoration by 2035. Sea level rise will convert existing transition zones to tidal salt marsh habitats in the upper Lagoon as the extent of tidal influence expands to these areas of degraded and converted historical non-tidal salt marsh (LPLEP, 2016).

The design of Phase 1 of the Lagoon restoration and enhancement is based on the selected alternative from the LPLEP identified as "Freshwater Management." During the early planning stages of the LPLEP update, efforts were made to solicit input from key stakeholder groups that included members of the public, primary landowners, local and regional planning groups, resource managers, wetland experts, law enforcement, representatives from local municipalities within watershed, and partner non-profits that operate in TPSNR (i.e., Torrey Pines Docents and Torrey Pines Association). More detailed information on stakeholder participation through public workshops is provided in the LPLEP (Chapter 6) that is provided as Appendix A to

the Final Programmatic Environmental Impact Report for the Los Peñasquitos Lagoon Enhancement Plan (PEIR) prepared by the California Department of Parks and Recreation.

Based on the results of the public workshops and other stakeholder outreach efforts, project alternatives for each component of the overarching program (i.e., lagoon restoration and enhancement, public access, and vector management) were then developed through technical analysis and preliminary designs. To differentiate between lagoon restoration and enhancement project alternatives, habitat trajectory modeling using data sets generated from the Lagoon's long-term continuous monitoring program, (field verified) updated vegetation association and habitat mapping, watershed inputs of freshwater and sediment, and established sea level rise rates calibrated specifically for projected surface elevations within the Lagoon were utilized. This process is described in further detail in Chapters 7 through 9 of the LPLEP. Additionally, an extensive evaluation, ranking, and selection of improvement alternatives was established and applied for each of the proposed alternatives. For more information describing evaluation and ranking of proposed project alternatives, refer to Chapter 10 of the LPLEP. Based on the iterative screening process described in the LPLEP, the proposed project activities were identified and recommended for detailed evaluation in the PEIR. Alternatives addressed in the PEIR are described and analyzed in Chapter 9 of the PEIR.

Alternatives developed for restoring and enhancing the Lagoon's native habitats included the following: No Action (referred to as Lagoon Concept 1 in the Enhancement Plan); Freshwater Management (Channel Improvements; Lagoon Concept 2); Expanding Tidal Reach (Elevation Reduction; Lagoon Concept 3); and Elevation Reduction and Freshwater Management (combination of Lagoon Concepts 2 and 3). The Freshwater Management (Channel Improvements) activity was identified as the proposed project due to salt marsh and conversion zone recovery, focused impacts, and long-term resiliency in response to sea level rise.

The selected alternative, Freshwater Management, that underwent assessment in the PEIR includes the implementation of channel improvements and focused grading to create channels and slopes that direct dry weather flows into existing tidal channels and minimize sheet flows that currently are impounded and inundate large areas within the upper lagoon that includes the marsh plain. Channel improvements consist of lengthening, widening, and deepening the existing tidal channels into Phase 1. The selected alternative includes additional channel improvements (*e.g.,* creation of secondary and tertiary channels, lowering of channel banks) and focused grading. The selected alternative includes sediment management (e.g., floodplain enhancements and sediment management facilities) implemented at the terminus of lagoon tributaries and along Flintkote Avenue. The selected alternative will provide enhancement of the riparian corridors within Phase 1 that include removal of invasive vegetation and replanting of native species, along with removal of trees infected by shot hole borer beetles. Focused grading includes removal of invasive grass, lowering elevations, and improving drainage of impounded freshwater and storm runoff into the main tidal channels and to bring tidal waters farther back into Phase 1. The selected alternative includes the restoration of native salt marsh conversion zones that are currently dominated by cattails (*Typha* spp.) and invasive species that include large areas of Italian rye grass. Establishment of salt marsh conversion zones within the Lagoon would be implemented in conjunction with channel improvements, focused grading, and salt marsh restoration.

Design-Level Alternative Analysis

Using the selected alternative from the LPLEP and the PEIR, the Phase 1 design process includes multiple component alternative analysis to develop the least impactful design that meet the compliance target of the Sediment TMDL. The compliance targets of the Sediment TMDL include reductions in sediment loading to the

Lagoon to 1973 levels, restoration of historical salt marsh toward 84 acres by 2035, and management of freshwater inputs to the Lagoon. Each target addresses existing conditions as summarized in Section 1.2 of the Project Description. The Project will achieve TMDL compliance targets by addressing these site conditions that have led to the Lagoon impairment. These design-level alternative analyses are summarized as follows:

Location of Sediment Management – Floodplain Enhancements

Long term sediment loading from the watershed has impacted the riparian corridors and historical salt marsh habitats. In order to address these impacts and meet TMDL sediment load reduction targets and timelines, sediment management measures are planned upstream of the TPSNR prior to reaching the Lagoon. The sediment management measures include three floodplain enhancements (see Figure 1-10). The floodplain enhancement features will increase the maintained channel width and incorporate vegetated gabion structures that will reduce water surface elevations and flow velocity to increase sediment capture. Alternatives to the location of the floodplain enhancements were analyzed during the design for sediment capture efficiency and potential impacts. Alternatives included located floodplain enhancements within the existing pilot channel and farther downstream within the parcel owned by the California Coastal Conservancy. Although these locations provided more area and greater sediment removal efficiency, they were also located in riparian habitat directly connected to the channel. Construction and continued frequent maintenance of these facilities would have potential long-term impacts to this habitat. The alternative selected were locations along the low flow channels of Carrol Canyon Creek and Los Peñasquitos Creek that are currently not directly connected to the channel and floodplain due to existing elevation. These locations are also adjacent to existing developed industrial areas and the railroad embankment and outside the TPSNR. These locations due contain riparian vegetation but are more isolated and not directly connected to the channels. A third floodplain enhancement is located within the City of San Diego property on Flintkote Avenue that is a disturbed area that has been used for maintenance equipment and material storage.

Different alternatives for the location of floodplain enhancement 2 adjacent to the Los Peñasquitos Creek low flow channel were analyzed. An assessment of multiple alternatives was conducted to balance impact minimization to existing natural resources with the need to optimize sediment and debris removal. Without the floodplain enhancement feature, sediment and trash would be transported downstream and impact the lagoon and salt marsh restoration. Existing natural resources within the area include riparian habitat and a wildlife corridor for listed Ridgway's Rail. With these design goals, two different locations for this feature were analyzed. The first included located the floodplain enhancement to the northeast of the existing low flow channel, and the second includes flipping the low flow channel to the northeast side of the floodplain enhancement. The latter option was selected that directs the stormwater flows from Los Peñasquitos Creek into the feature and allow for dry-season low flows to enter into the re-aligned low flow channel to be located along the northeastern side of the floodplain enhancement and serve as a Ridgway's rail wildlife movement corridor. This configuration allows for a larger 60-80-foot-wide wildlife corridor and higher sediment removal efficiencies than maintaining the current location of the low-flow channel adjacent to the industrial development. The re-aligned low flow channel will have an earthen bottom. Existing non-native plant species will be removed, and the habitat will be enhanced with replanted native vegetation that is appropriate for Ridgway's rail passage.

Floodplain Enhancements Habitat Value and Maintenance

An alternative analysis was conducted with input from the Technical Advisory Committee on the design of the floodplain enhancements. Various design features were considered within each floodplain enhancement feature to promote sediment capture, reduce flow velocity, and increase channel conveyance, habitat function and operation and maintenance access. The floodplain enhancements will require frequent maintenance that will include removal of sediment and potentially established vegetation depending on the number and size of storm events annually. Over excavation of sediments is not desirable. In addition, a means to assess when sediment has accumulated to a level requiring removal and to measure how much is removed for TMDL sediment loading reduction targets is needed. Input from the TAC was to develop these features using green bioengineering techniques. The outcome from the design analysis of options was to use articulated concrete block on the bottom of the floodplain enhancements to facilitate access and measurement for maintenance and TMDL target measurements. Open cell articulated concrete blocks will be planted with native grasses such as creeping wild rye, giant wild rye, marsh fleabane, and deer grass. Incorporation of native vegetation into floodplain enhancement areas will increase aquatic functions, wildlife value, and reduce mitigation requirements. The design also includes the use of bioengineered grade control structures that will slow own the storm flows to allow coarse sediment to drop out and divide the floodplain enhancements into cells. these structures will have stone as a base and then be earthen-filled and vegetated in the upper layer to provide a more natural bioengineered approach and added habitat value. Vegetation that will be included as part of these bioengineered grade control structures will be sandbar willow and arrowweed.

Alternative Analysis for Freshwater Management Channels

The Phase 1 project will consist of constructing primary and secondary freshwater conveyance channels. The new freshwater channels will improve connectivity of the upstream Carroll Canyon Creek and Peñasquitos Creek channels with the Lagoon to provide enhanced conveyance of dry-weather freshwater and stormwater flows away from wetland conversion zones. The alignment of the primary freshwater channel was evaluated during the design process to determine the most effective alignment that would meet the design goals and minimize impacts. During the concept and 30% design phase, the freshwater channels used existing fragmented channels that had intact riparian habitat. Further analysis of the potential impacts led to the re-alignment of the channels. An alternative to the original design was assessed that realigned the channels to where riparian and freshwater wetland enhancement is planned. The current design has realigned the channels from along existing riparian corridors to areas of degraded habitat to minimize impacts to sensitive habitats. New channels now correspond to areas planned for riparian and wetland habitat restoration/rehabilitation and enhancement where habitats have been degraded with invasive and non-native plant species and conversion from increased freshwater inputs.

Alternative Analysis of Salt Marsh Restoration and Extent of Disturbance

Salt marsh habitat restoration activities include removal of non-native perennial ryegrass (*Festuca perennis*) and excavation and grading to remove historically accumulated surface sediments to increase tidal extent and inundation. Site grading also includes the extension of tidal channels through the restoration site to increase the tidal connection, extend the tidal flows further into the site, and accelerate the passage of freshwater through the restoration area. The salt marsh restoration design has analyzed numerous alternative refinements using a hybrid grading refinement approach consisting of maximum touch, moderate touch, and light touch approaches to achieve the restoration goals. This grading approach allows the

establishment of the salt marsh restoration within the anticipated schedule while enabling transition areas for future sea level rise (SLR) adaptation. These approaches extend from the farthest downstream location with the maximum touch to the upstream light touch restoration areas.

Salt marsh restoration design refinement alternatives were assessed using a numerical hydrodynamic model, Environmental Fluid Dynamics Code (EFDC) Model, that simulates water and salinity levels under existing and proposed conditions. The EFDC Model's purpose was to evaluate various refinement alternatives and the target habitats that could be established and maintained in the salt marsh restoration area. Tidal hydraulics and salinity modeling were used to determine water levels and salinity levels, respectively, as well as to evaluate impacts of the lagoon inlet and tidal channel conditions on water and salinity levels in the salt marsh restoration area.

Various alternatives to the alignment, depth and dimensions of the new tidal channels were conducted. Through these various design alternatives and model runs the current design has one main tidal channel that splits into two channels in circular pattern with limited dendritic branches to provide for greater ponding and detention of high-tide flows with the goal of increasing the salinity of sediment in this area to promote the establishment and sustainability of the restored salt marsh vegetation.

The excavation and grading alternatives took into consideration the existing intact salt marsh vegetation in the areas within the former wastewater pond. The grading and disturbance in this area will be limited to preserve these areas to the extent feasible. The existing man-made berms of the former industrial pond will be removed, and new salt marsh habitat created. The area to the northeast of the former industrial pond will undergo the maximum touch approach that corresponds to the former tidal salt marsh that was present in 1973 and is the basis for the TMDL restoration goals. The maximum touch area will extend into the pinch point area to increase both tidal flow to the restoration area and to convey freshwater flows from the upper lagoon. Numerous scenarios and refinement alternatives were assessed with the EFDC model to determine the extent and depth of excavation to establish the salt marsh habitats and focusing on area of degraded salt marsh habitat. Based on the sediment investigation, there is a layer of sand overlying fine-grained soils in this former salt marsh area. Excavation within the salt marsh restoration will remove the sand and expose the underlying fine-grained soil necessary for salt marsh plant establishment.

Based on various grading scenarios modeled, a grade control feature is also planned along the freshwater channel to exclude persistent dry weather freshwater flows from the salt marsh restoration area and convey sediment around the planned restoration area similar to the condition that the berm around the former industrial pond created. The results of the sediment transport modeling have indicated that this feature is needed to maintain sediment loading to the salt marsh restoration area below current loading conditions. The feature will extend from the upstream low touch area to the downstream maximum touch extent of the salt marsh restoration. The new tidal channel will also increase tidal inundation to the sub-phase 1C area to better sustain salt marsh restoration.

5.3.3.3 Evaluation of the Project as the Least Environmentally Damaging Option

As discussed in the section above, the Project includes core elements that necessitate both disturbance to, and modification of, City wetlands. However, the Project has incorporated phasing and design features that minimize and avoid adverse modification to wetlands to the greatest extent feasible. Phase 1 would result in the removal of approximately 0.9-acre of giant reed that are associated with permanent floodplain enhancement and outfall improvements present the least damaging option, as this habitat offers the lowest quality existing wetland habitat while still providing viability to achieve Project goals. To the greatest extent

feasible, habitats known to support sensitive species, including least Bell's vireo and light-footed Ridgway's rail, have been minimized as part of Project actions and the required avoidance and minimization measures. Where temporal loss is proposed to occur, such as to southern coastal salt marsh, southern willow scrub, and southern arroyo willow riparian forest habitat types, the Project duration and proposed action will incorporate Project elements that will minimize temporal loss and/or direct and indirect impacts to special-status plant and wildlife species. These Project elements, discussed in greater detail in Section 7.0, include measures such as biological monitoring, pre-activity surveys, seasonal timing of work outside of breeding seasons and reducing construction durations.

Sub-phase 1A Floodplain Enhancement 1 and Floodplain Enhancement 2 have been designed to be located adjacent to the existing pilot channel. These features have been designed to minimize modifications of wetlands to the extent feasible while still reaching project goals and objectives. Further, the floodplain enhancement design includes 0.8 acre of giant reed, which is considered low quality and represents a less environmentally damaging option than construction within higher value habitats. Modifications of riparian habitats associated with floodplain enhancement will occur within areas of low function due to low flows contained within Carroll Canyon Creek. Floodplain Enhancement 3, which is proposed for siting within an area historically used for construction staging, has been designed in combination with stockpile staging areas proposed for future phases of the Project. This combination of Project components has avoided additional disturbance of wetlands. Phasing of this design to develop Floodplain Enhancement 3 following use of the area for stockpiling and eliminates the need to disturb additional areas of wetlands.

Similar to floodplain enhancement, the majority of outfall improvements as part of sub-phase 1A have been designed where outfall areas would be subject to routine maintenance. Design of these outfall improvements to use and improve existing facilities represents the least impactful option, as design of new features would require novel development of outfalls in previously undisturbed areas. Where outfall improvements are proposed to encroach into wetland areas that are not currently maintained, the design will bisect wetland areas in the shortest manner possible required for direct connection to the freshwater bypass to utilize the smallest feasible footprint.

Where Project roads have been designed with anticipated impacts to wetlands as part of sub-phase 1B, the proposed roads have been sited to overlap with additional disturbance areas to the greatest extent feasible. These include use of stockpiling areas and floodplain enhancement areas proposed for maintenance and outfall locations. Where roads cannot be collocated within other Project design components, they have been designed to utilize existing access points within Torrey Pines State Park, such as an existing utility access road along the southern and western BSA boundary characterized as developed habitat and otherwise degraded habitat. Where road ingress to wetland areas is required for essential Project components such as salt marsh restoration, roads are proposed perpendicular to developed habitat to utilize the shortest possible route within wetlands or other ESL while also reducing fragmentation and possible edge effects. Where roads are proposed to parallel stretches of wetland areas such as along the northern and eastern BSA, modification of wetlands have been minimized through the design of these roads to parallel areas of existing disturbance such as railroad tracks. By paralleling the railroad tracks, the Project would minimize impacts of the road by eliminating the need for additional areas of anthropogenic disturbance within the Lagoon, prevent additional habitat degradation or fragmenting, and reduce access points for trespass. Further, these permanent access roads are proposed within lower functioning freshwater riparian communities, avoiding higher functioning coastal salt marsh habitats, with only 0.04 acre of coastal salt marsh located within the proposed access routes. Considering that one of the primary goals of the Project is to restore saltmarsh value and function,

the Project and its associated design features, including limited permanent access roads, represent the least damaging option to biological resources within the BSA. Where temporary access roads and stockpiling areas cannot avoid salt marsh habitat, the Project has prioritized use of "degraded" salt marsh habitat rather than high functioning salt marsh.

Sub-phase 1B and 1C channel and salt marsh restoration components are included to restore channel and the larger wetland functions of the Lagoon. The freshwater management channels within sub-phase 1B have been realigned from earlier designs to avoid intact riparian habitat and are located within degraded freshwater and non-tidal salt marsh that have been impacted by accumulated sediment and invasive plant species. Both habitat rehabilitation and enhancement are planned along the new freshwater channel corridors to improve overall wetland function and value. Within the sub-phase 1C salt marsh restoration area, grading and disturbance will focus on the areas of degraded salt marsh where non-native rye grass has established. Although these areas include disturbance and modification of extensive wetland habitat types, areas proposed for restoration have focused on restoration, rehabilitation and enhancement of degraded wetland habitat Existing high functioning riparian and coastal salt marsh wetlands have been avoided to the greatest extent feasible.

5.3.3.4 Project Disturbance

Per City Biological Guidelines, the City does not distinguish between temporary and permanent impacts to wetlands. The Project would result in the modification of 92.4 acres of City wetland habitat. However, this area of disturbance is exclusively as a direct result of restoration activities (enhancement/rehabilitation/type conversion), and/or constitute non-functional or degraded wetlands (e.g., eliminating non-native riparian areas of giant reed, pampas grass, rye grass and/or tamarisk and wetland/riparian habitat type conversions). The entire Project involves a large-scale, historical saltmarsh restoration that will benefit MSCP-covered species, other special-status species, common species, and will restore sensitive habitats and hydrological functioning to support both biological and anthropogenic land uses. It is within this context that the Project components and associated activities, such as the salt marsh restoration grading, do not require mitigation as the end result would be an improved wetland/riparian system.

5.3.3.5 Wetland Buffers

The Project proposes to maintain existing physical wetland buffers. Existing buffer conditions in the BSA include an expanse of existing open space comprised of native habitat that buffers the western and northern portions of the Project that will not be modified by Project implementation. The BSA is currently buffered by developed areas to the east and south, and this interface has resulted in no existing functional buffer between the wetlands and existing development in these regions. Although the Project proposes floodplain enhancement, outfall improvements, and permanent access along the eastern perimeter, these Project components have been designed at the edge of existing developed areas and do not represent a potential for substantial increases in long term physical disturbance, noise, domestic animal intrusion, human encroachment, and/or other activity above current ambient conditions. Although not directly related to the creation of physical buffers, the Project has incorporated floodplain enhancement, outfall improvements, and channel restoration activities that will manage freshwater input to protect wetland functions, filter coarse sediment through biofiltration design components, and reduce erosion through bioengineered grade control structures in an environmentally superior manner than existing conditions. Overall, the Project is expected to enhance functional buffers related to water quality to flood water management, while maintaining existing physical buffers.

5.4 Project Effects on Special-Status Plant Species

5.4.1 Direct Effects on Special-Status Plant Species

Per the City's Significance Determination Threshold guidelines, any impacts to federally or state-listed plant species, as well as all narrow endemic plant species, are considered significant (City of San Diego 2011b). Listed or narrow endemic plant species have not been observed within the BSA, nor do any species under these considerations have a moderate or high potential to occur in the BSA. Therefore, there are no significant impacts associated with the Project on federally, state-listed, and/or narrow endemic plant species.

To determine anticipated direct effects to special-status plant species within the BSA, the proposed limits of disturbance was analyzed in conjunction with GPS point and polygon data collected during surveys. This resulted in both direct counts of individuals and polygons with multiple individuals. Where Project features intersected with mapped special-status plant species polygons, the numbers of affected plants were calculated as the percentage of the total numbers included within each polygon versus the percentage that fell within the Project features.

The Project design includes areas proposed for permanent impact (floodplain enhancements and permanent access roads) and temporary construction and conversion of habitat (restoration areas), which intersect with special-status plant species locations. A total of 13 species status plant species were identified within the overall BSA, 10 of which are located within the Project footprint. Table 5-5 summarizes the special-status plant species within the Project footprint (Figures 5-5a through 5-5i).

Table 5-5: Anticipated Effects to Special-Status Plant Species

Special-Status Plant Species	Status	Approximate Total Number of Individuals within the BSA	Number of Individuals Within Project Disturbance Footprint		Level of Significance Prior to Mitigation
			Permanent Impact[1]	Temporary Impact[2]	
CRPR 1 or 2					
Del Mar Mesa Sand Aster *Corethrogyne filaginifolia* var. *linifolia*	CRPR 1B.1, MSCP-covered	1,963	0	114	Less than significant. This species is included in the seed applications associated with restoration.
Torrey Pine *Pinus torreyana*	CRPR 1B.1, MSCP-covered	24		3[3]	Less than significant.
Nuttall's Scrub Oak *Quercus dumosa*	CRPR 1B.1	113	1	10	Less than significant. This species is included in the Restoration Plan/HMMP at a 1:1 ratio to ensure no net loss.
Sessileflower False Goldenaster *Heterotheca sessiliflora* ssp. *sessiliflora*	CRPR 1B.1	9	0	2	Less than significant. This species is included in the seed applications associated with restoration.

Table 5-5: Anticipated Effects to Special-Status Plant Species

Special-Status Plant Species	Status	Approximate Total Number of Individuals within the BSA	Number of Individuals Within Project Disturbance Footprint		Level of Significance Prior to Mitigation
			Permanent Impact[1]	Temporary Impact[2]	
Coast Wallflower *Erysimum ammophilum*	CRPR 1B.2, MSCP-covered	204	0	61	Less than significant. This species is included in the seed applications associated with restoration.
San Diego Barrel Cactus *Ferocactus viridescens*	CRPR 2B.1, MSCP-covered	9	0	0	No impacts.
San Diego Marsh-Elder *Iva hayesiana*	CRPR 2B.2	1,133	1	529	Less than significant. This species is included in the seed applications associated with restoration.
Sea Dahlia *Leptosyne maritima*	CRPR 2B.2	514	0	0	No impacts.
CRPR 3 or 4					
South Coast Branching Phacelia *Phacelia ramosissima* var. *austrolitoralis*	CRPR 3.2	787	35	176	Less than be significant.
San Diego Sagewort *Artemisia palmeri*	CRPR 4.2	374	13	143	
Southwestern Spiny Rush *Juncus acutus* ssp. *leopoldii*	CRPR 4.2	604	0	471	
California Boxthorn *Lycium californicum*	CRPR 4.2	1	0	0	
Woolly Seablite *Suaeda taxifolia*	CRPR 4.2	60	0	60	
Southern California black walnut (*Juglans californica*)	CRPR 4.2	1	1	0	

1 Permanently impacted plants include those populations within floodplain enhancement areas, permanent access rods, and storm drain improvement areas.

2 Temporarily impacted plants include those populations within restoration areas that will be part of the restoration plant palette and replaced through in-kind planting of container stock and/or seeding with locally harvested seed.

3 Two of the three Torrey pine individuals located within the temporary disturbance footprint will be avoided. The project would result in unavoidable impacts to one tree.

Figure 5-5: Impact and Mitigation Types Special-Status Plants

Figure 5-5a: Impact and Mitigation Types Special-Status Plants

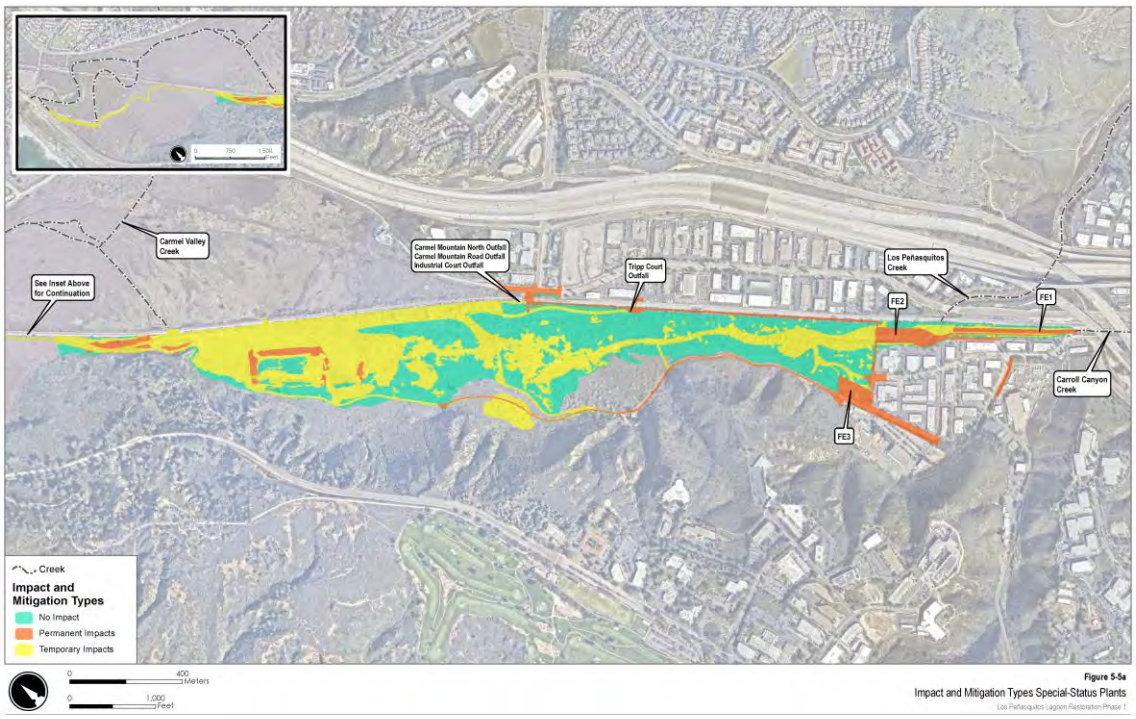


Figure 5-5b: Impact and Mitigation Types Special-Status Plants

Figure 5-5c: Impact and Mitigation Types Special-Status Plants

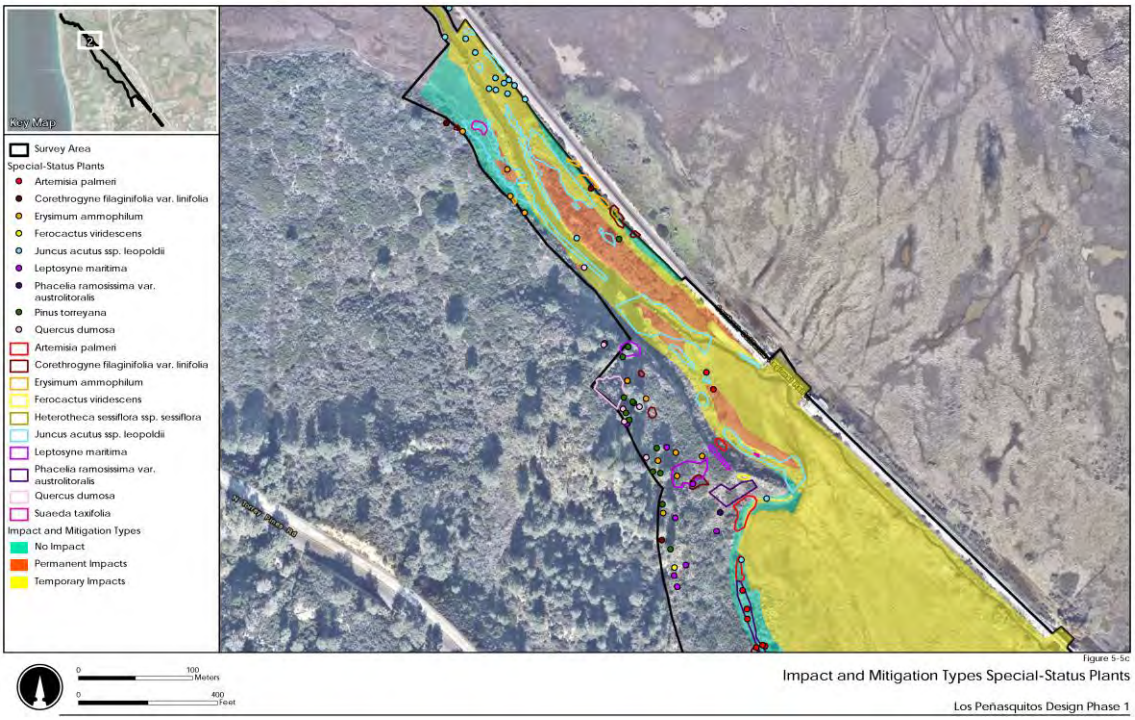


Figure 5-5d: Impact and Mitigation Types Special-Status Plants

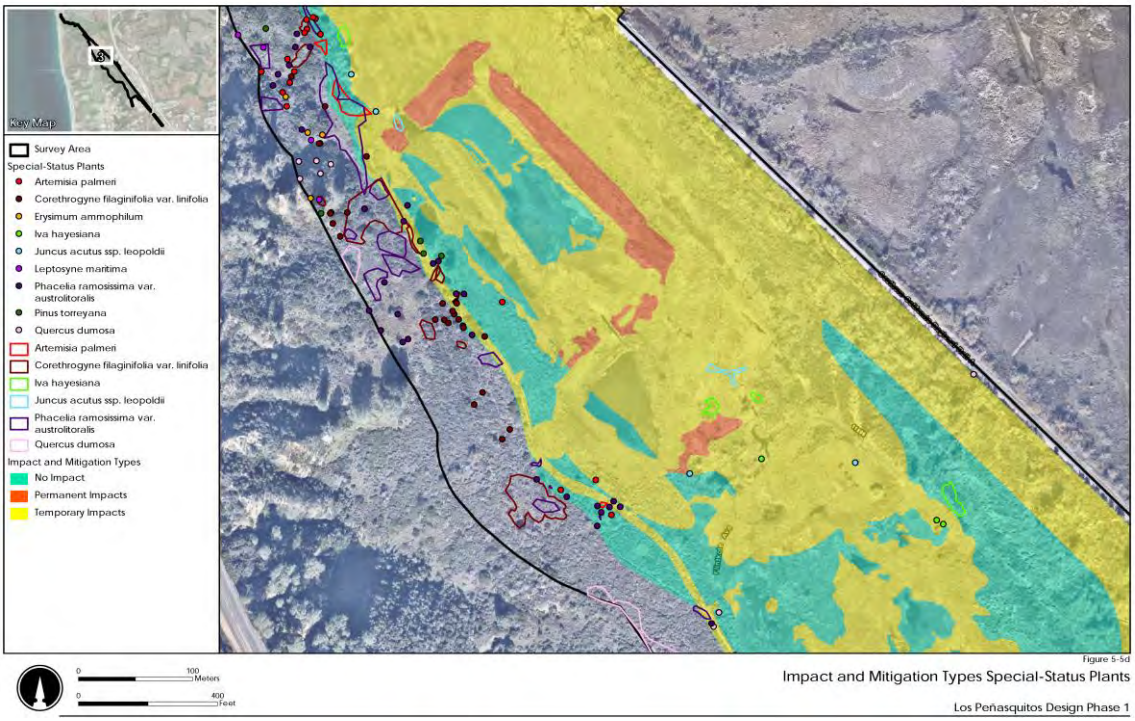


Figure 5-5e: Impact and Mitigation Types Special-Status Plants

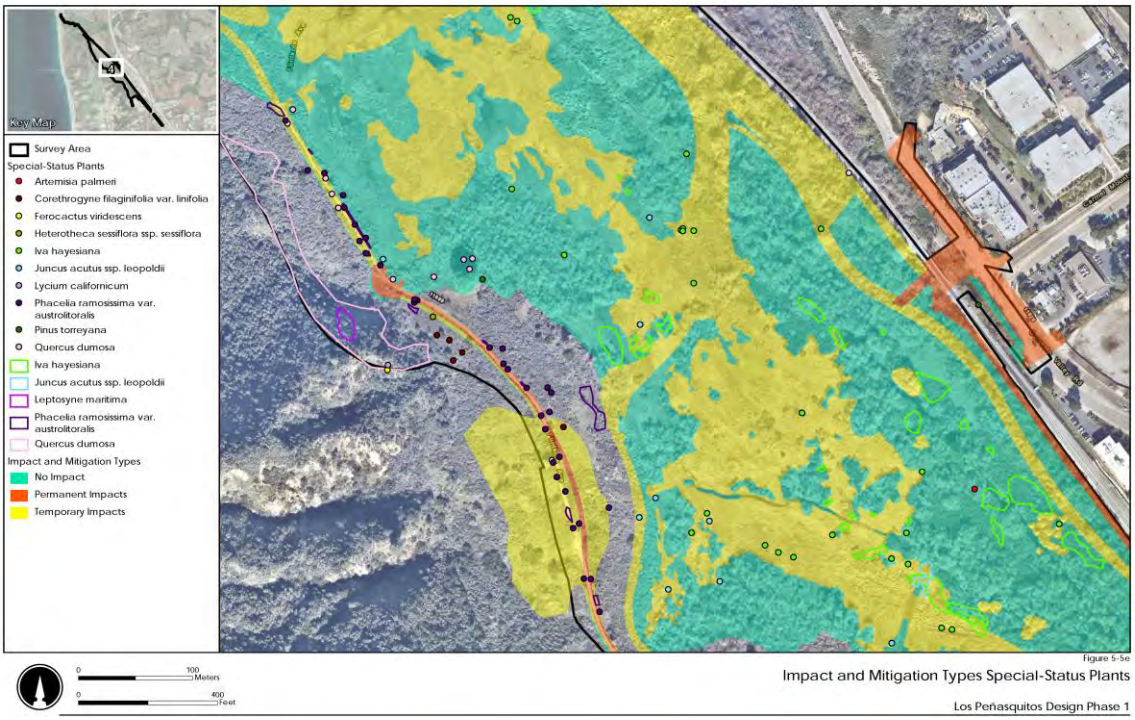


Figure 5-5f: Impact and Mitigation Types Special-Status Plants

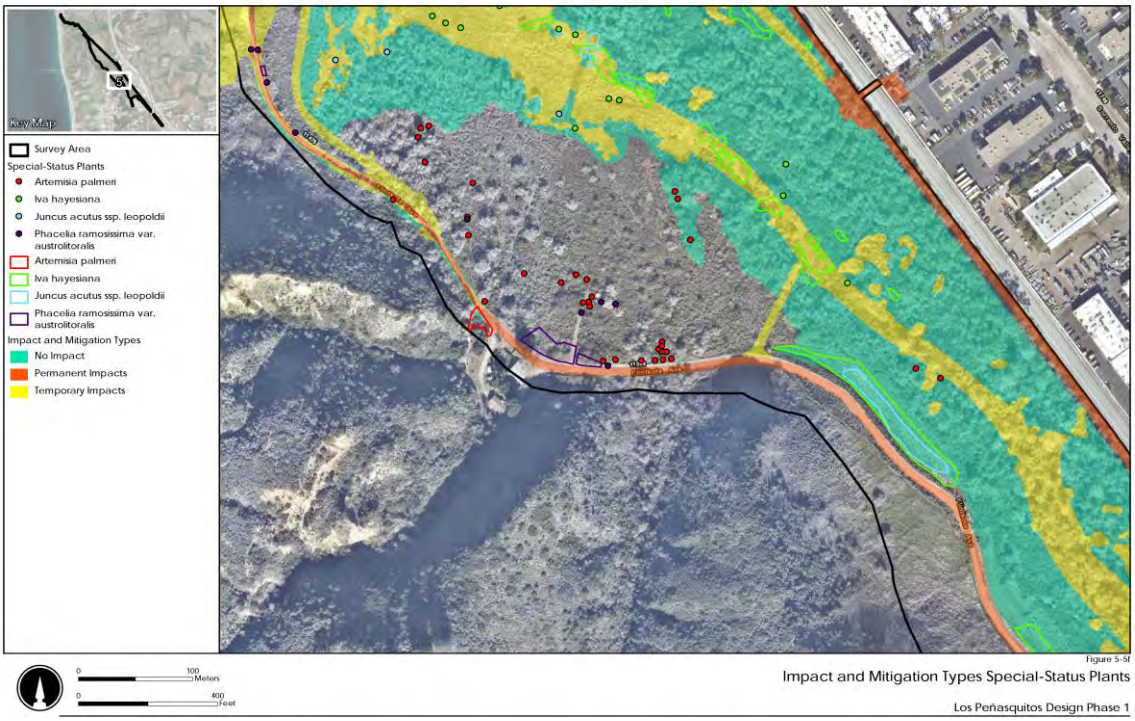


Figure 5-5g: Impact and Mitigation Types Special-Status Plants

Figure 5-5h: Impact and Mitigation Types Special-Status Plants

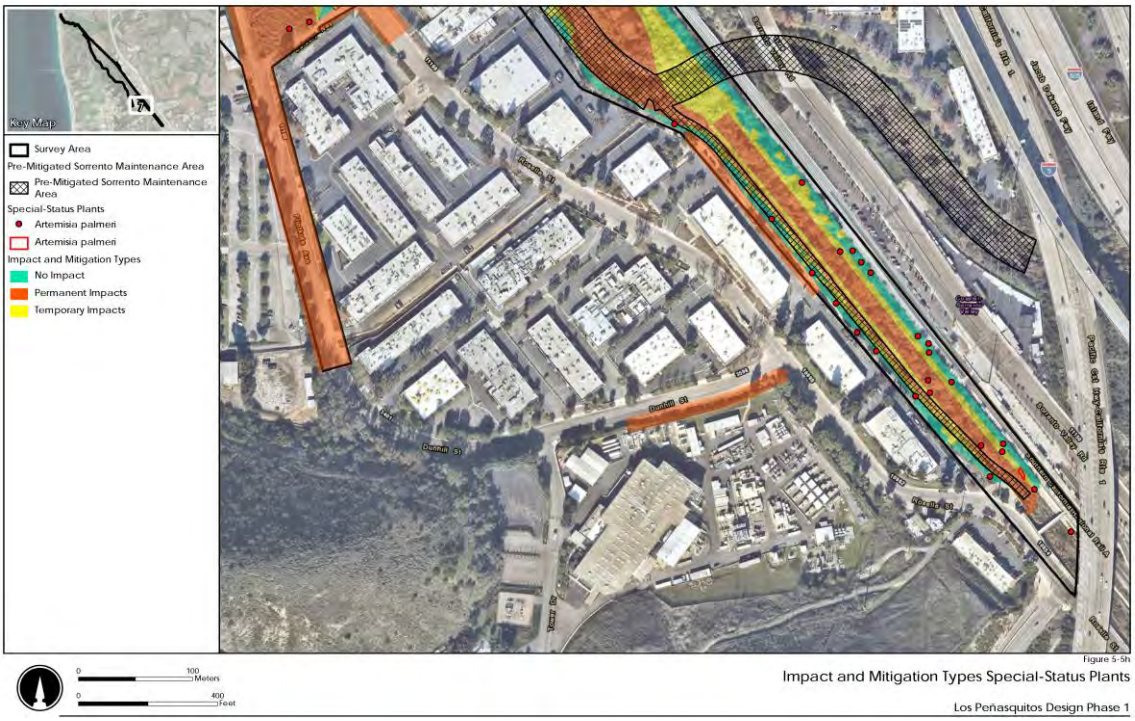


Figure 5-5i: Impact and Mitigation Types Special-Status Plants

The Project will not result in the loss of any San Diego barrel cactus, California boxthorn or sea dahlia individuals.

The City's significance thresholds apply for special-status plants ranked CRPR 1 or 2, as well as threatened and endangered species, but do not typically apply to species ranked CRPR 3 and 4, unless proposed project construction activities would significantly damage a population. San Diego sagewort, southwestern spiny rush, South Coast branching phacelia, and woolly seablite are CRPR 3 or 4 species that would be lost as a result of Project-implementation. The loss of these populations would be **less than significant** considering that many more individuals exist within the BSA and its surroundings and salt marsh habitat would be enhanced for both southwestern spiny rush and woolly seablite upon Project completion.

Sessileflower false goldenaster, San Diego marsh elder, and Nuttall's scrub oak are CRPR 1 and 2 species that require analysis under CEQA. Populations of sessileflower false goldenaster are relegated to one small area where a portion of a mapped polygon at the far northern end of the BSA falls within the restoration zone, but the larger portion of the polygon would remain untouched, leaving the patch largely intact. In addition, localized sessileflower false goldenaster seed applications as part of the restoration effort would ensure that the loss of two individuals through restoration activities would be considered **less than significant**.

Although not covered by the MSCP, the permanent loss of approximately one San Diego marsh elder shrubs is considered **less than significant** due to this species' strong association with other MSCP-covered species that are expected to benefit from habitat restoration and improved wetland function proposed by the Project and are therefore consistent with the overall goals of the MSCP. Temporary impacts to 529 individuals would be **less than significant** as this species is included in the seed applications as part of the restoration effort. Populations of this species are expected to reestablish through a combination of plantings to be included in a Restoration Plan/HMMP as well as natural recruitment.

One Nuttall's scrub oak would be impacted by the Project with the permanent access road portion along the west side and 10 would be lost through restoration activities. However, several hundred individual Nuttall's scrub oaks would remain in the BSA and its immediate surroundings upon Project completion. To ensure that the Project results in no-net loss of these species, the Restoration Plan/HMMP will include replacement of the removed individuals at a 1:1 ratio. Therefore, the loss of 15 individuals is considered **less than significant** when considering the abundance of this species at the local level along with proposed replanting.

A total of three Torrey pines currently exists within the restoration footprint. Of those three, two will be avoided and one will be impacted by restoration activities. The loss of one individual from the MHPA is considered **less than significant** because the location of the Torrey pine to be removed is a lone tree, discontinuous from any stands of Torrey pine and the removal is necessary to establish tidal hydrology to proposed salt marsh restoration area. The loss of the Torrey pine is similar to other habitat conversions that are considered an appropriate trade-off to establish habitat that is more similar to historic and sustainable habitat conditions.

Project implementation would result in the permanent loss of 10 Del Mar mesa sand aster individuals and the temporary loss of 114 individuals. The project would result in the temporary loss of 61 coast wallflower individuals. Populations of these species would be included within the restoration and Restoration Plan/HMMP, therefore, the loss of Del Mar mesa sand aster and coast wallfower individuals are proposed to be offset by replacing those individuals through in-kind planting of container stock and/or seeding onsite with locally harvested seed from the Lagoon and are considered **less than significant**. Restoration efforts would also include invasive plant species control and a five-year monitoring period to meet success criteria established by an accepted Restoration Plan/HMMP.

The three MSCP-covered special-status plant species (Del Mar mesa sand aster, Torrey pine and coast wallflower) that occur within the Project footprint require analysis for consistency with the conditions of coverage discussed in Appendix A of the City of San Diego MSCP Subarea Plan (City of San Diego, 1997a). Additional discussion regarding conditions of take coverage for these species and project consistency with those conditions is provided in Section 4.4.

5.4.2 Indirect Effects on Special-Status Plant Species

Implementation of the Project may indirectly affect special-status plant species located adjacent to the disturbance footprint. Indirect effects to these vegetation communities could include fugitive dust, hydrologic changes (e.g., overspray, erosion), pollinator disruptions, and trampling from increased human presence in the area during the restoration phases. However, these indirect effects would be eliminated or reduced through the implementation of avoidance and minimization measures described in Section 7. With implementation of avoidance and minimization measures, indirect effects on special-status plant species related to construction and restoration would be **less than significant**.

5.5 Project Effects on Special-Status Wildlife Species

5.5.1 Direct Effects to Special-Status Wildlife Species

Potential direct impacts to special-status wildlife species that may occur as a result of construction of the Project include wildlife entrapment, killed or injured wildlife, nest failure, and unauthorized grading or vegetation removal. These activities have the potential to occur for many reasons, including lack or absence of Project design staking, inadequate or unmaintained demarcation of proposed impact areas, misinterpretation of Project designs, and human error in operating equipment. Dependent on construction methodology and sequencing, impacts resulting from wildlife entrapment may occur where excavations remain open and unsealed for extended periods. Wildlife injuries and mortalities have the potential to occur as a result of any of the previously discussed reasons but are also an inherent risk when working in proximity to undisturbed areas during activities such as initial vegetation clearing and ground disturbance.

State and/or federally listed wildlife species that are known to occur within the BSA include white-tailed kite, Belding's savannah sparrow, coastal California gnatcatcher, light-footed Ridgway's rail, and least Bell's vireo. Light-footed Ridgway's rail is a state-fully protected species. The American peregrine falcon was observed and has a high potential to occur as a foraging species within the BSA. Crotch's bumble bee *(Bombus crotchii)* is a state candidate for listing and has a moderate potential to forage or nest within upland habitats in the BSA. Direct impacts to upland species (coastal California gnatcatcher, American peregrine falcon, and Crotch's bumble bee) are not anticipated with incorporation of pre-construction nesting surveys as a Project design feature and the avoidance and minimization measures proposed herein. The Project includes avoidance and minimization measures which will ensure that construction of the Project will have a **less than significant** effect on upland special-status wildlife species known to be present in the BSA. Potential direct impacts to individual Belding's savannah sparrow, light-footed Ridgway's rail, and least Bell's vireo are not fully covered under MSCP (since these species occur primarily in wetlands) and therefore the Project will have a **significant impact without mitigation** on these species.

MSCP-covered species that were found present in the BSA include coastal California gnatcatcher, Cooper's hawk, Belding's savannah sparrow, least Bell's vireo, light-footed Ridgway's rail, mule deer, northern harrier, orange-throated whiptail, saltmarsh skipper, and white-faced ibis. Temporary impacts to habitats supporting

all of these species are considered **less than significant** provided coverage conditions of the MSCP are met. Additional discussion regarding these conditions is included in Section 4.4.

While the MSCP conditions of coverage are met through restoration of temporary impacts and the overall net benefits of the project for habitat function and resilience, a portion of the temporary impacts are subject to additional temporal loss (due to use as construction roads, adaptive management roads, or staging/stockpiling) or will have reduced function (due to lining channel bottoms with cobble or periodically removing vegetation within channels to ensure freshwater conveyance capacity is maintained. Approximately 11.1 acres of the total 69.1 acres of temporary impacts to potential habitat for special-status wildlife species is subject to some level of additional temporal loss or reduced function (Table 5-6). These impacts would be significant if they adversely affect occupied habitat for listed species in a manner that jeopardizes, even temporarily, the life cycle of those species. The temporary impacts identified in Table 5-6 occur in the marsh plain, primarily in subphases 1B and 1C, where listed species present is limited to Belding's savannah sparrow and light-footed Ridgway's rail. Most of these temporary impacts will occur in riparian and natural flood channel habitat are not preferred by these species. The 5.57 acres of marsh impact occurs sporadically over a large area (approximately one linear mile) within narrow (typically 15-feet wide) patches of habitat (Figures 5-6a through 5-6i). Based on the configuration of temporal impacts to suitable habitat for Belding's savannah sparrow and light-footed Ridgway's rail and the size of the temporary loss relative to available habitat in the Lagoon (less than 5%), these temporary impacts to special-status wildlife are considered **less than significant**.

In summary, the loss of habitat associated with temporary (i.e., restoration) impacts associated with the Project are not expected to result in severe adverse effects on species currently utilizing those habitats within the BSA. Belding's savannah sparrow occur primarily in the downstream portion of the BSA (adjacent to the tidal channel) and in the northern portion of the Lagoon. Temporary loss of habitat within the Project may result in short-term shift or reduction of the overall Lagoon species population; but restored habitat within the Project will provide higher value habitat and may support a larger population compared with pre-Project levels. Ridgway's rail also primarily occur outside the BSA in the northern portion of the Lagoon and in Los Peñasquitos Canyon. It is estimated that one breeding pair may occur in middle portion of the Project. Temporary loss of habitat within the Project may result in a shifting of breeding populations into other suitable habitat areas; but restored habitat within the Project will provide higher value habitat and may support a larger population compared with pre-Project levels. A similar temporary shift in habitat usage may occur for other resident and nesting species. Riparian species that are only known to migrate and not breed within the Lagoon, such as least Bell's vireo, are expected to shift usage to other suitable riparian habitat in the region but may also benefit from exotic removal and understory plant diversity that is expected to occur as a result of the Project.

Table 5-6. Temporary Impacts with Temporal Loss or Reduced Function

Wildlife Habitat	Type of Delay or Loss of Function			Total
	Cobble-Lining and/or Maintenance During Adaptive Management (acres)	Construction Roads, Staging/Stockpiling (typically 1 to 2-year delay)	Adaptive Management Roads (potential for 3 to 5-year delay)	
Marsh[a]	0.41	1.90	3.26	5.57
Riparian[b]	1.52	1.48	2.32	5.32
Natural Flood Channel	0.11		0.13	0.24
Total	**2.05**	**3.38**	**5.70**	**11.13**

[a] Consists of alkali meadow, alkali seep, freshwater marsh, brackish marsh, coastal salt marsh, and coastal salt marsh –degraded vegetation communities

[b] consists of mule fat scrub, southern arroyo willow riparian forest, and southern willow scrub vegetation communities

Figure 5-6: Impact and Mitigation Types and Special-Status Wildlife

Figure 5-6a: Impact and Mitigation Types and Special-Status Wildlife

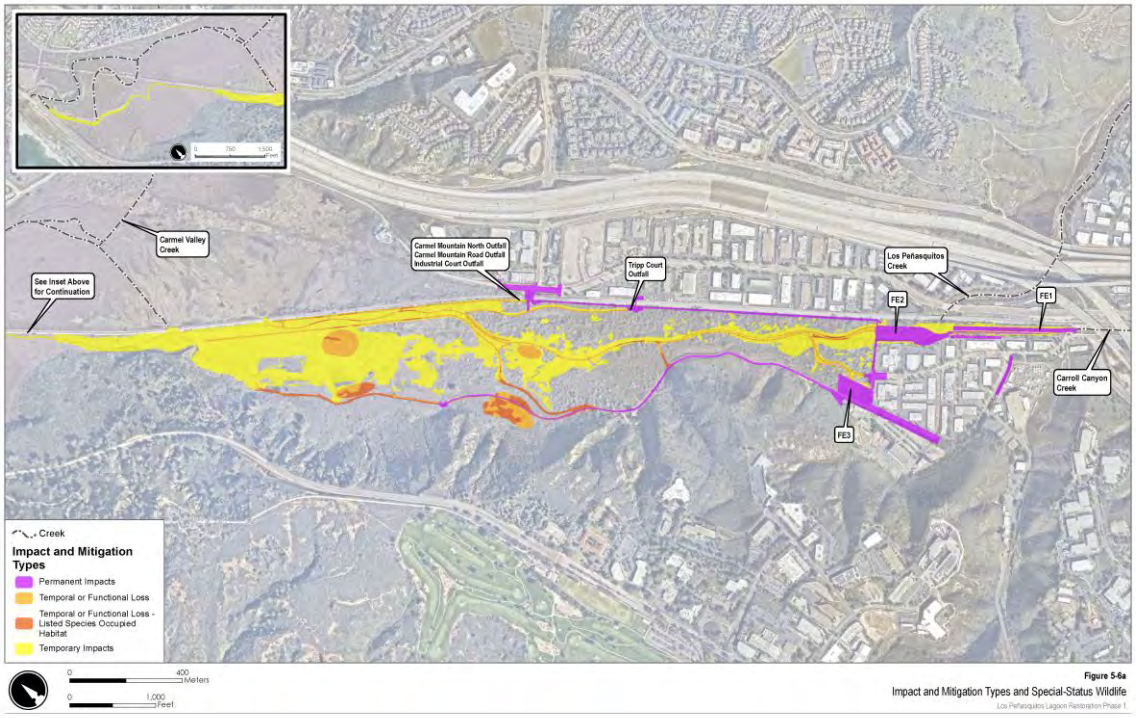


Figure 5-6b: Impact and Mitigation Types and Special-Status Wildlife

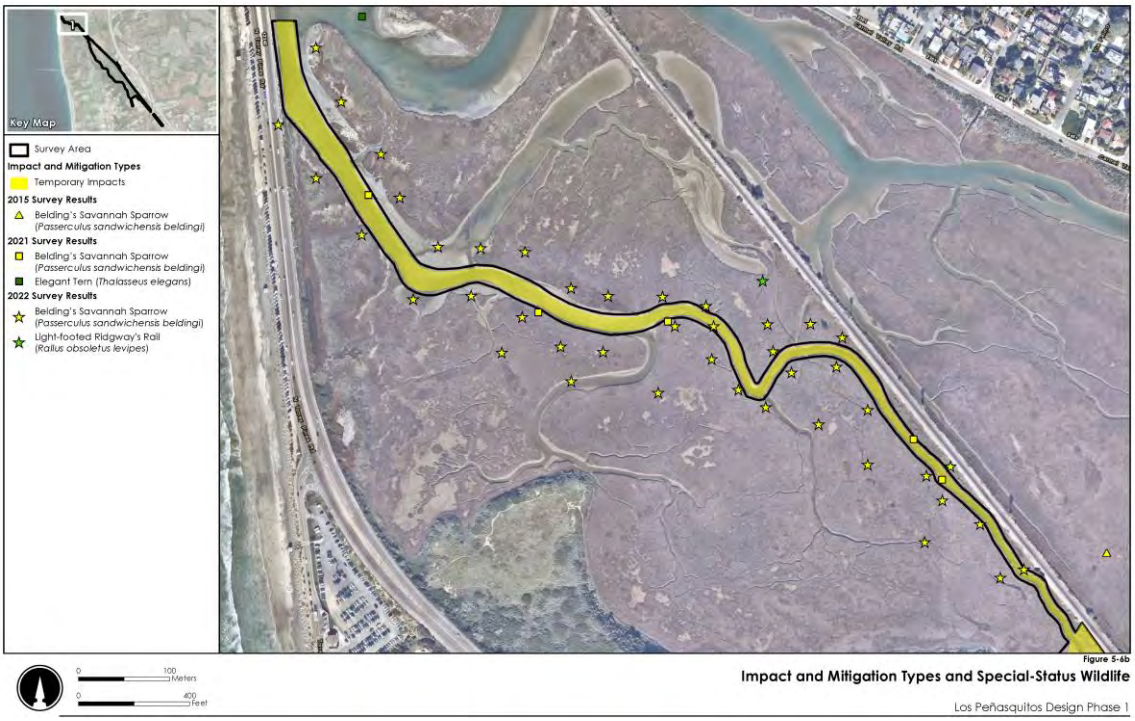


Figure 5-6c: Impact and Mitigation Types and Special-Status Wildlife

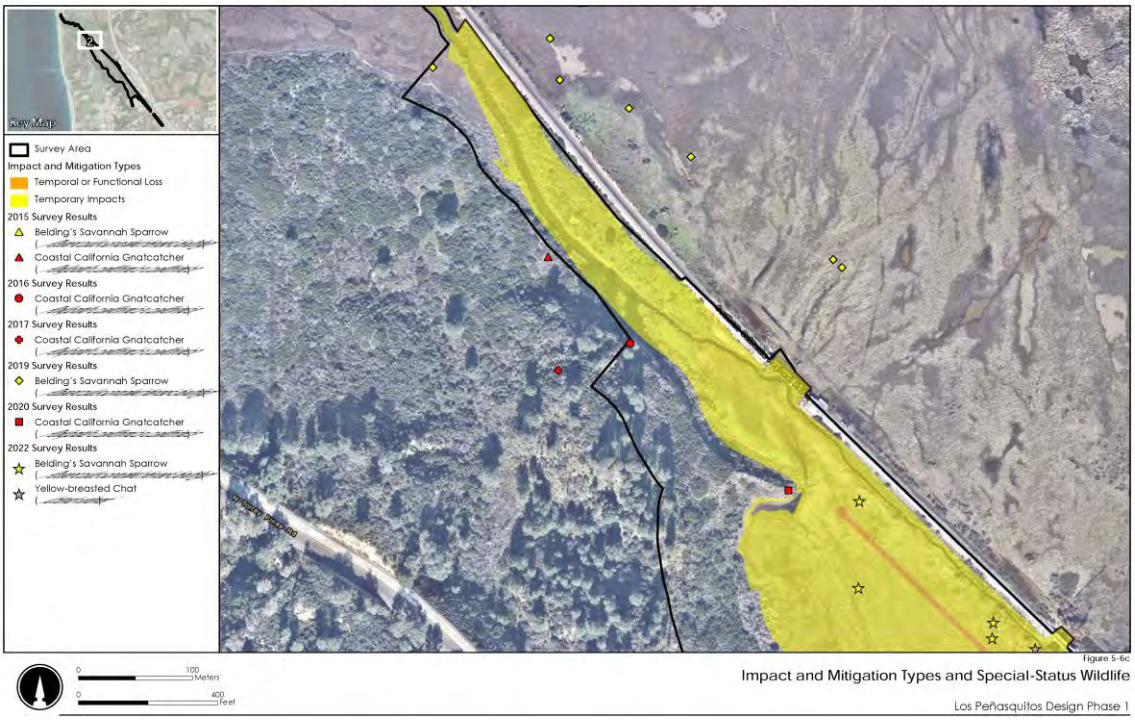


Figure 5-6d: Impact and Mitigation Types and Special-Status Wildlife

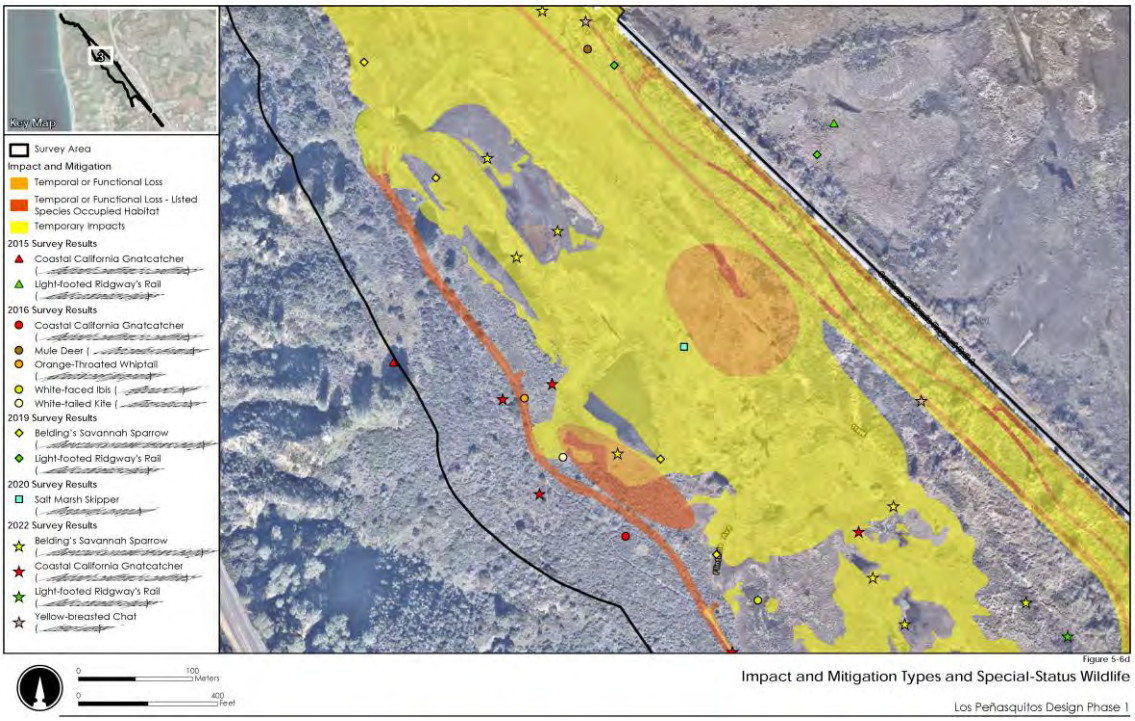


Figure 5-6e: Impact and Mitigation Types and Special-Status Wildlife

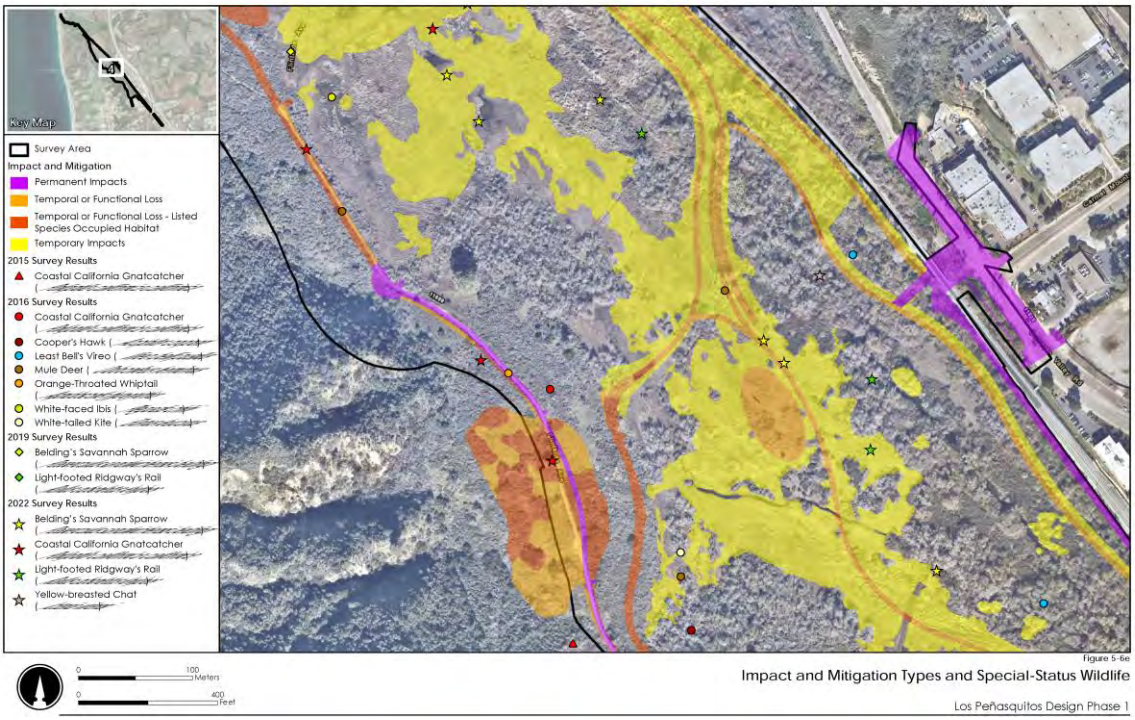


Figure 5-6f: Impact and Mitigation Types and Special-Status Wildlife

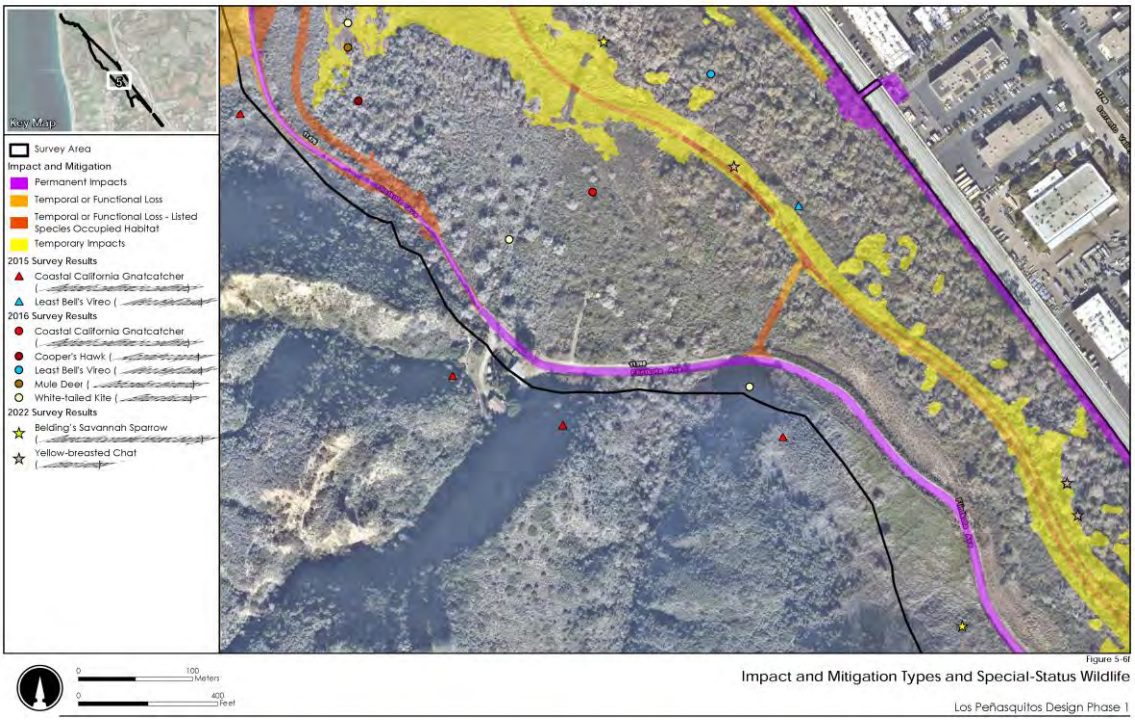


Figure 5-6g Impact and Mitigation Types and Special-Status Wildlife

Figure 5-6h: Impact and Mitigation Types and Special-Status Wildlife

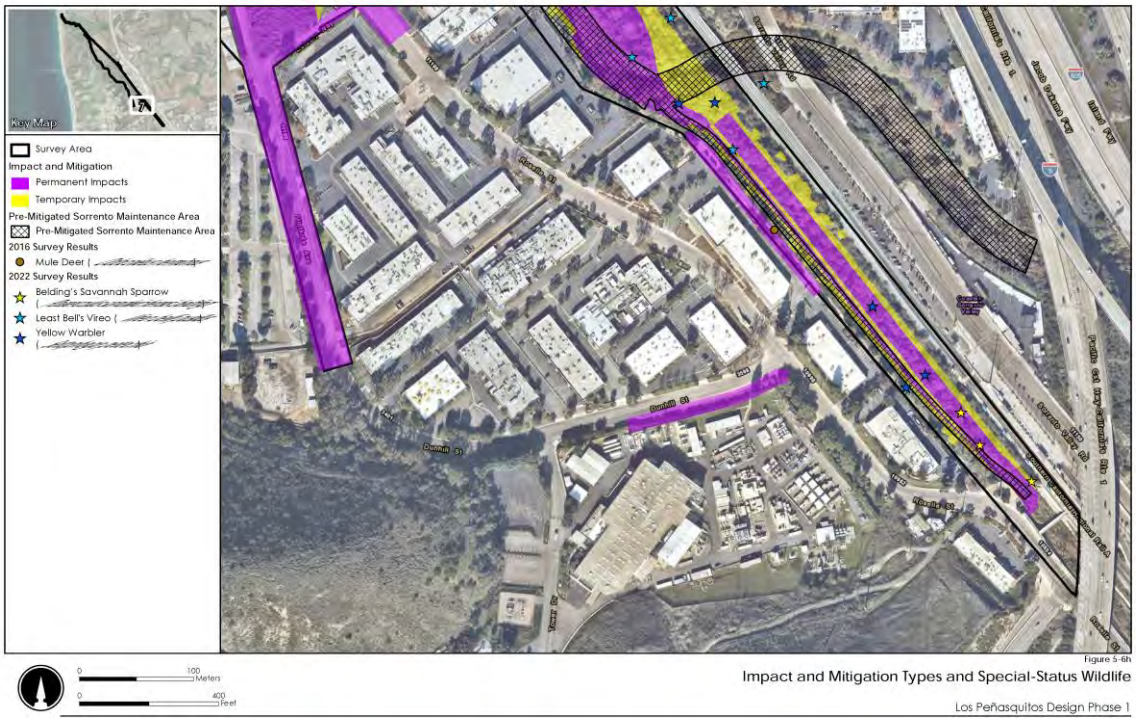


Figure 5-6i: Impact and Mitigation Types and Special-Status Wildlife

Permanent impacts to Tier II and IIIB and wetland habitats supporting special-status wildlife species are considered a **significant impact** due to the loss of habitat (Tables 5-1 and 5-2).

5.5.2 Indirect Effects to Special-Status Wildlife Species

Temporary indirect effects to special-status and MSCP-covered species can occur as a result of increased noise, vibration, lighting, construction dust, and/or loss of foraging habitat. Permanent indirect effects associated with the long-term operations and maintenance of the Project may include similar effects to those resulting from construction, such as noise generated by operations and maintenance activities. However, with implementation of the Project avoidance and minimization measures, indirect effects to special-status wildlife species are considered **less than significant** for MSCP-covered species. Indirect impacts to wetland dependent MSCP-covered species may result in take which is not authorized under MSCP and therefore are considered a **significant impact**.

The Project has limited potential for temporary direct and indirect effects on wildlife movement that may be deterred from the Project due to increased noise, human activity, and temporary disturbances to habitat as there is ample surrounding habitat for these species to utilize during Project construction. Therefore, the Project will not result in temporary indirect effects to wildlife movement.

Temporary indirect effects to MSCP-covered species will include the loss of foraging and/or breeding habitat as a result of the Project during the preparation and re-establishment periods. However, because this loss is consistent with the overall MSCP goals to restore, maintain, enhance, and preserve saltmarsh and wetland function within the MHPA, these effects are considered **less than significant**. In addition, there is ample habitat available for these species in areas surrounding the Project disturbance footprint.

Although some special-status species that have been documented in the BSA are not covered by the MSCP, temporary indirect effects to these species are anticipated but are considered **less than significant** since these species are strongly associated with other MSCP-covered species that are expected to benefit from habitat restoration and improved wetland function proposed by the Project consistent with the overall goals of the MSCP. In addition, adjacent open space will remain throughout Project activities that individuals can use for foraging; therefore, the populations of these species will not be significantly impacted by temporal loss.

5.6 Project Effects on Wildlife Movement Corridors and Habitat Linkages

The Project occurs in Core Biological Resource Area 14: Los Peñasquitos Lagoon/Del Mar Mesa/Peñasquitos Canyon which has associated linkages to Del Mar Mesa–Black Mountain and Los Peñasquitos Creek west of Poway. A particular area of concern is the wildlife corridor from the Los Peñasquitos Creek to the upper Lagoon. The Project does not overlap directly with land identified as supporting nursery sites. The City's Significance Determination Threshold guidelines state that interfering substantially with the movement of any established native wildlife species may result in the determination that impacts are significant (City of San Diego 2011b).

Project effects on Core Biological Resource Area 14 and associated linkages would be temporary and would result in the creation of enhanced and restored habitat that is aimed at improving habitat for wildlife that uses the area within the BSA. Wildlife would be able to move unobstructed through the local area during and following construction. A minimum 95-foot wide wildlife corridor will be maintained adjacent to floodplain

enhancement 2. While the width of total open space in this corridor will be reduced by approximately 50%, the function of the habitat is expected to be enhanced. Currently the corridor consists of approximately 60-80 feet of open water and marsh habitat with the remaining area supporting elevated, dense riparian habitat with invasive giant reed. This elevated riparian area is not highly suitable to movement by wetland species such as Ridgway's rail. The restored wildlife corridor will be primarily open water (natural flood channel) with banks vegetated with marsh and riparian species that is expected to retain the pre-Project movement conditions. Therefore, the Project would not result in any permanent impacts to wildlife movement and nursery sites.

Temporary impacts to wildlife movement would be similar to those identified in Section 5.5 for wildlife species. The majority of the Project occurs in areas where adjacent habitat will be available and unaffected by construction activities and therefore available for wildlife movement. Movement will be more restricted in the area of highest movement constraint (adjacent to proposed floodplain enhancement 2), but construction will be conducted according to project design features and other avoidance and minimization measures included restrictions from work at night and during the breeding season. With these measure, temporary impacts to wildlife movement are considered **less than significant** provided coverage conditions of the MSCP are met.

5.7 Anticipated Cumulative Impacts

The Project is situated near the Pacific Ocean coastline, within the eastern portion of TPSNR, and partially on CCC-owned lands and City-owned lands. As the TPSNR extends over an area of 1,461 acres, activities that would most likely impact biological and jurisdictional resources on a regional scale would mostly be associated with work at the TPSNR. However, Project activities on CCC-owned lands and City-owned open space adjacent to TPNSR may also impact such resources.

One proposed project that could have potential effects on the regional environment consists of accessibility improvements in the area of the Visitor Center and West Parking Lot of the TPSNR. As proposed, two accessible parking stalls, an exterior compliant route of travel, and site amenities (e.g., accessible benches and drinking fountain) would be built for visitor use near the Torrey Pines Lodge. Similar facilities would also be installed near the West Parking Lot, along with demolition of an existing/nonfunctioning restroom and construction of a new compliant Comfort Station in the same location. Overall, work would be limited to developed areas in the TPSNR but would likely involve the removal of one native shrub, with some minimal trimming and removal of vegetation to accommodate the accessible features in areas adjacent to pathways/buildings.

Future phases of the larger project regarding the restoration of Sorrento Valley and Los Peñasquitos tidal plains, wetlands, riparian habitats, and other natural habitats would further improve natural functionality of the local region and enhance, rather than detract from, habitat suitability for both common and special-status plant and wildlife species of the area. This Project is the first phase among several planned phases in future years that would improve the functionality of the entire Lagoon basin and its tributaries.

As such, for the current Project, cumulative adverse effects to existing biological and jurisdictional resources should be minor in extent when viewed in contrast to the restored functionality of the salt marsh habitat and improvement to freshwater flows that the Project entails. Additionally, most actions reasonably expected to occur in the Project vicinity within the foreseeable future would need review/approval from the City or CCC to ensure compliance with local coastal programs, coastal development requirements, and/or resources mandates, as well as CDFW, USFWS, USACE and RWQCB approvals, depending on the project. Such

procedures would serve to reduce habitat loss and species impacts within TPSNR and CCC/City-owned MHPA and non-MHPA lands. Moreover, as part of the Project, avoidance and minimization measures would be implemented to minimize the extent/level of disturbance proximal to the Project footprint. As shown in Table 5-5, the anticipated loss of special-status plant species could include up to approximately 3,004 individual plants, which would be replaced in-kind through a revegetation/restoration effort within the BSA, the establishment of environmentally selective areas (ESAs) in select cases, and/or localized design features that may reduce anticipated impacts in other instances. Avoidance and minimization measures would also assist to prevent regional loss of special-status plant and wildlife species and wetland, Tier I through Tier IIIB vegetation communities. In addition, due to the Project's consistency with the MSCP Subarea Plan, cumulative impacts may be considered null, and in the case of this Project, the end result is a net overall benefit. For further details regarding avoidance and minimization, see Section 7.

6.0 Mitigation Measures

As identified in Section 5, significant impacts to vegetation communities, jurisdictional resources, and special-status wildlife species would occur from implementation of the Project due to permanent impacts to wetlands and Tier II and Tier IIIB uplands outside the pre-mitigated area. Permanent impacts include the footprint of permanent access roads, storm drain improvements, floodplain enhancements, and Carroll Canyon Creek (which will be regraded, partially lined with cobble, and subject to permanent as-needed maintenance). In addition, re-establishment of wetlands within areas currently supporting Tier II uplands are considered significant as the proposed restoration in those areas will result in a loss of these upland vegetation communities. These significant impacts require mitigation based on the City's Biology Guidelines (Table 6-1). Mitigation for wetlands impacts would be offset by re-establishment of wetlands in existing upland vegetation communities and wetlands enhancement in non-graded portions of the Project as planned in the Restoration Plan/HMMP (Table 6-1, Figures 6-1a through 6-1i).

Table 6-1: Mitigation Required for Permanent Impacts to Sensitive Vegetation Communities

Vegetation Community	Significant Permanent Impacts (acres)	Mitigation Ratio	Mitigation Required (acres)	Wetlands Re-Establishment Proposed[1]	Wetlands Enhancement Proposed[1]	Total Wetland Mitigation Acreage[1]
Wetlands						
Riparian Forest	5.59	3:1	16.76			
Riparian Scrub	0.22	3:1	0.66		1.92	1.92
Disturbed Wetland	0.82	2:1	1.64			
Natural Flood Channel	0.04	2:1	0.08	0.03		0.03
Freshwater Marsh	0.07	4:1	0.28			
Salt Marsh	0.04	4:1	0.15	3.36	15.42	18.78
Wetlands Total	**6.77**	**--**	**19.57**	**3.39**	**17.35**	**20.74**
Uplands						
Coastal Sage Scrub	3.52[2]	1:1	3.52			See Table 6-2
Non-Native Grassland	0.24	1:1	0.24			
Uplands Total	**3.76**		**3.76**			
Total	**10.54**		**23.34**	**3.39**	**17.35**	**20.74**

1 All mitigation acreages proposed occur in the MHPA, on publicly-owned lands, excluding any utility easements

2 This acreage of significant coastal sage scrub permanent impacts includes a portion of area counted as wetlands re-establishment proposed.

Figure 6-1: Significant Impacts and Proposed Mitigation with Existing Vegetation Communities

Figure 6-1a: Significant Impacts and Proposed Mitigation with Existing Vegetation Communities

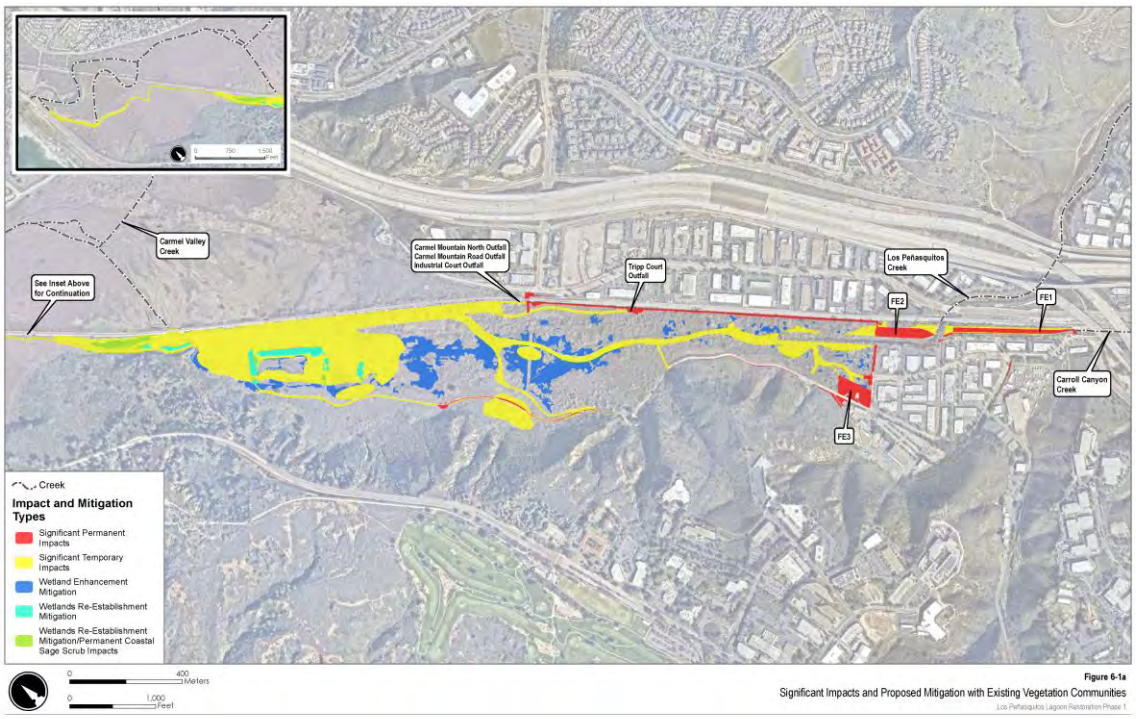


Figure 6-1b: Significant Impacts and Proposed Mitigation with Existing Vegetation Communities

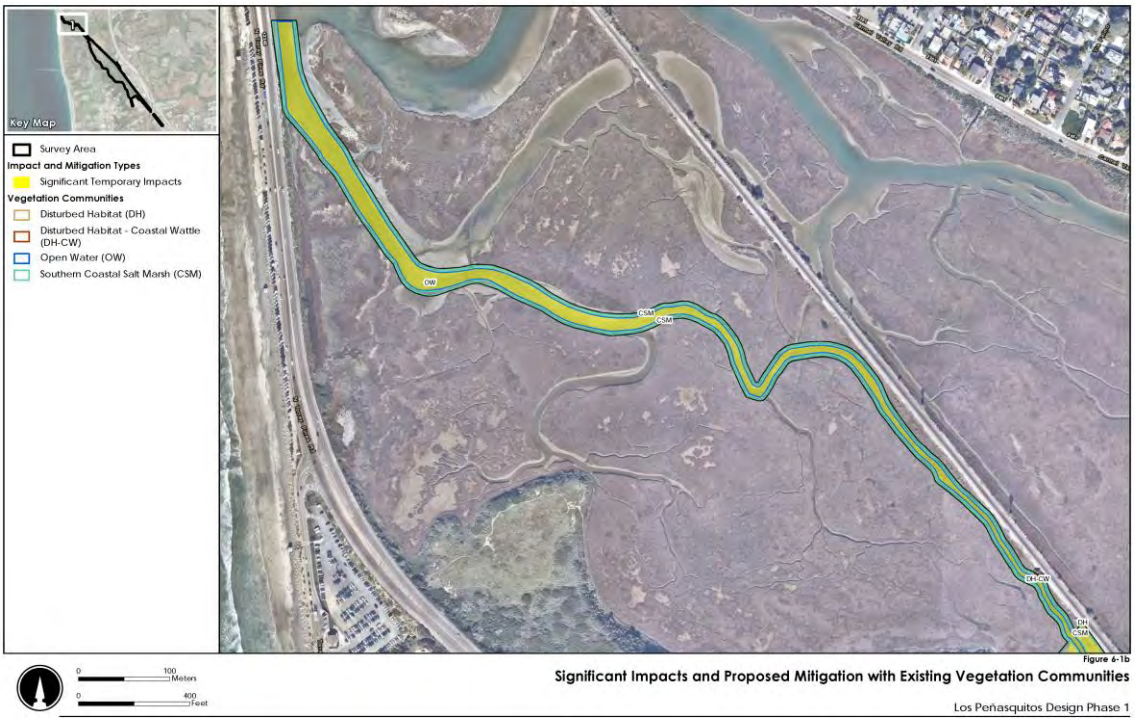


Figure 6-1c: Significant Impacts and Proposed Mitigation with Existing Vegetation Communities

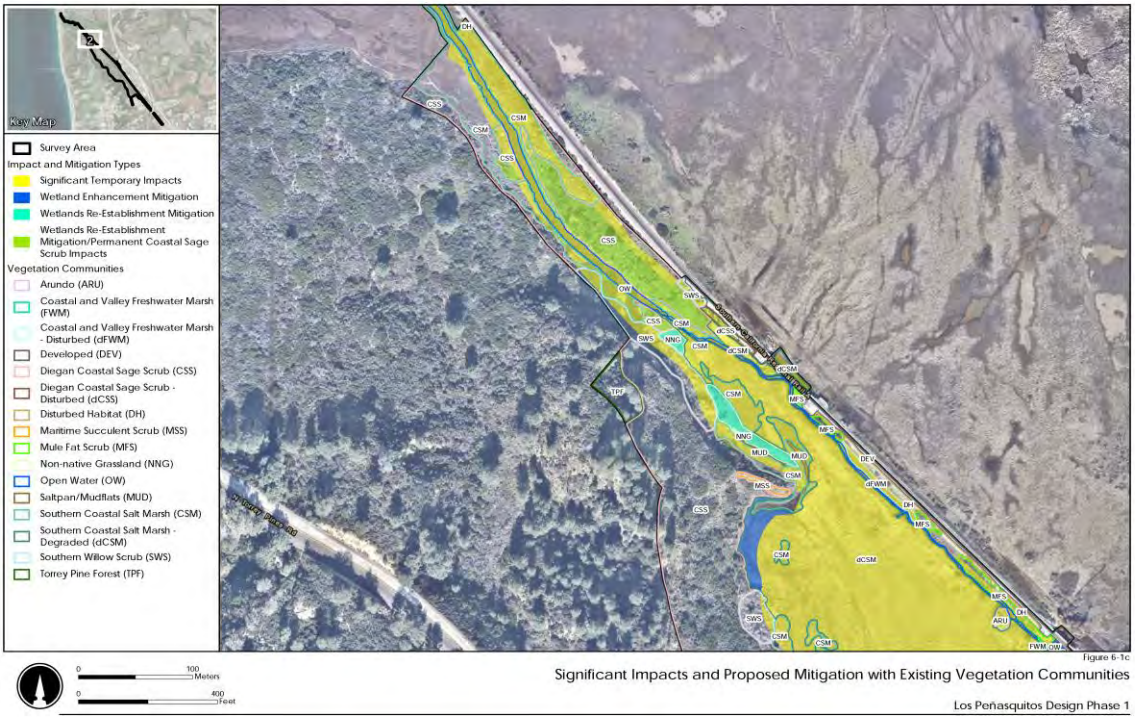


Figure 6-1d: Significant Impacts and Proposed Mitigation with Existing Vegetation Communities

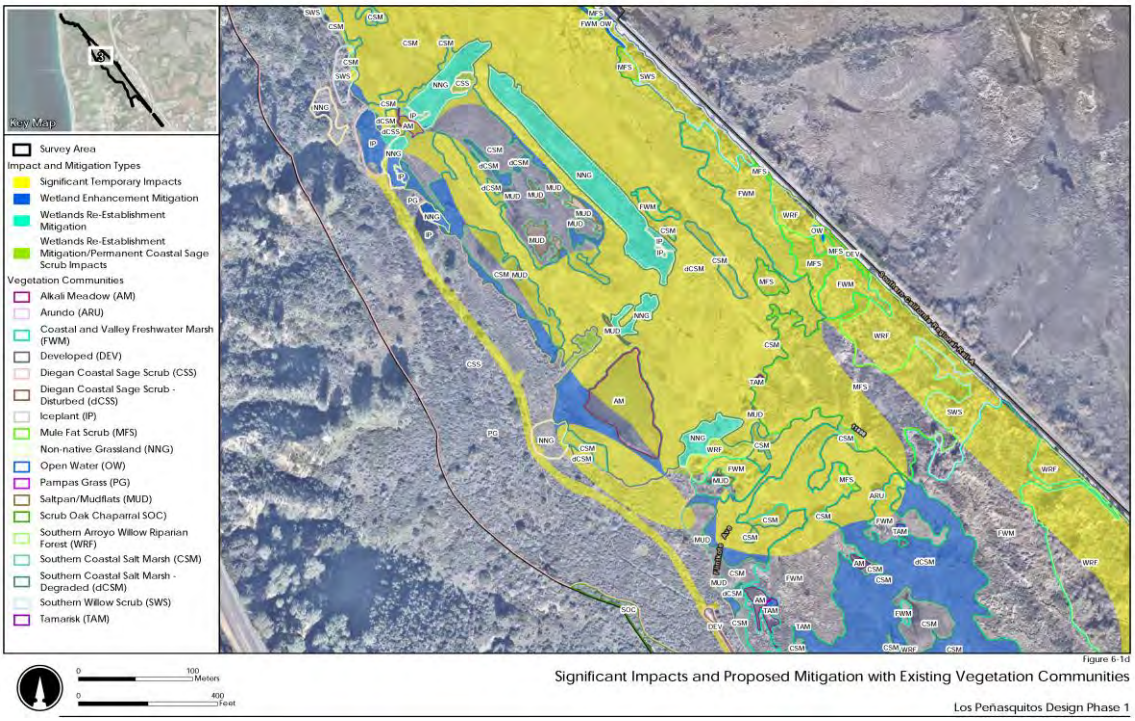


Figure 6-1e: Significant Impacts and Proposed Mitigation with Existing Vegetation Communities

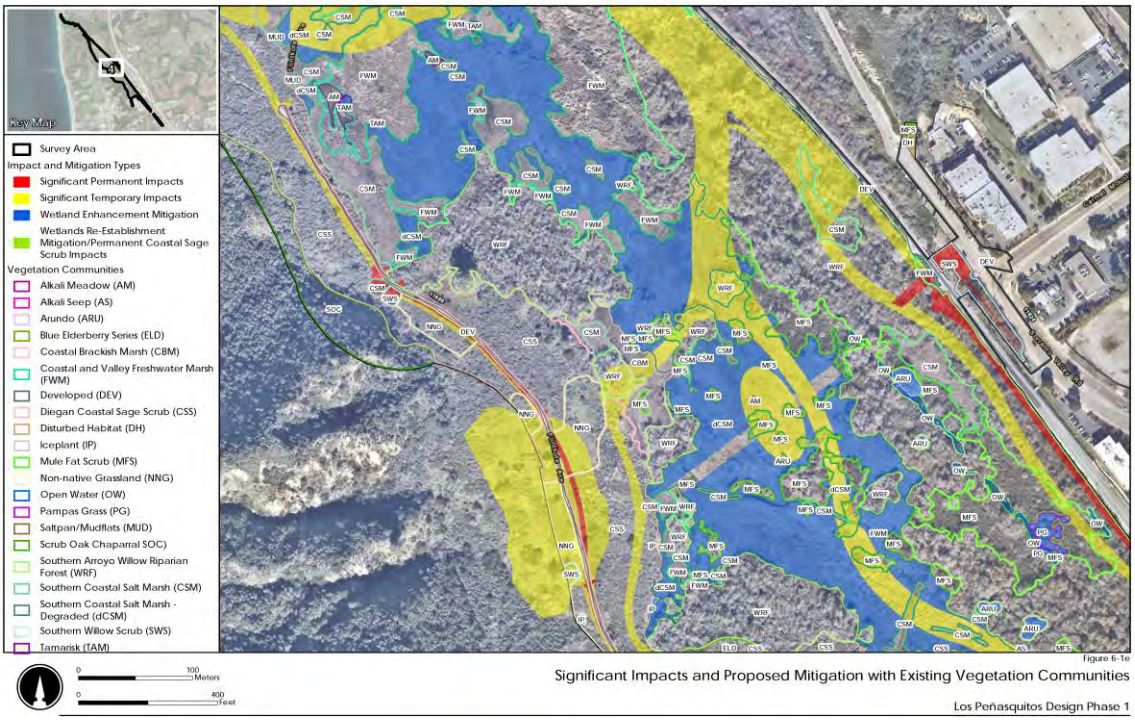


Figure 6-1f: Significant Impacts and Proposed Mitigation with Existing Vegetation Communities

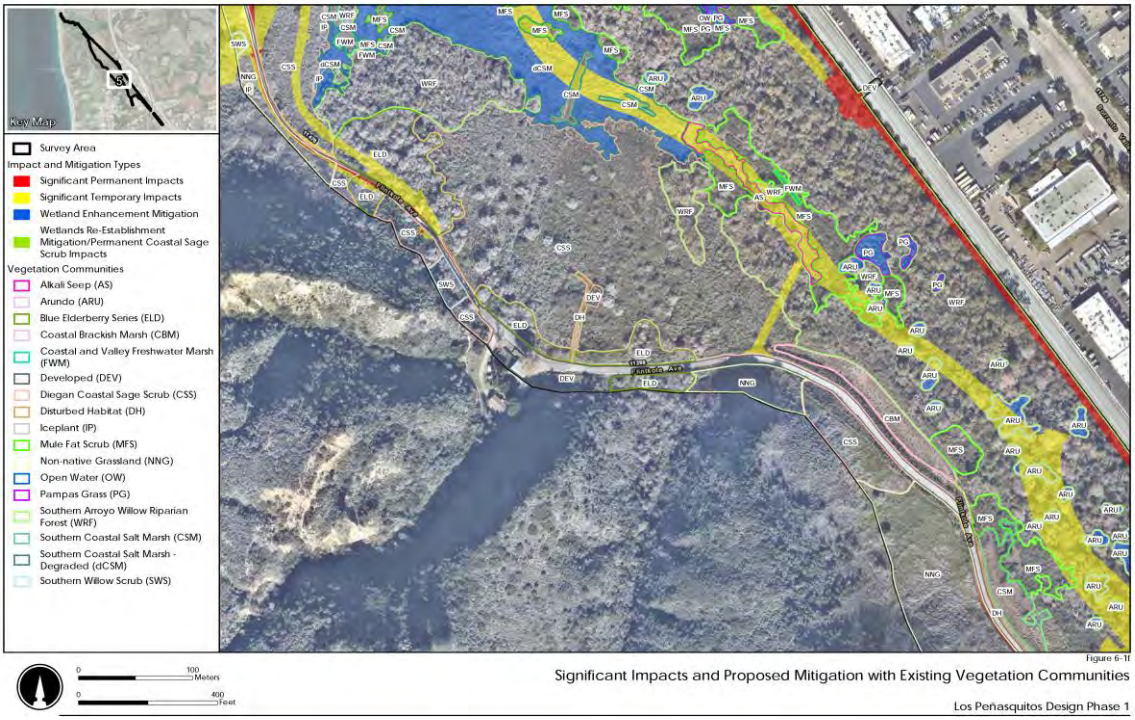


Figure 6-1g: Significant Impacts and Proposed Mitigation with Existing Vegetation Communities

Figure 6-1h: Significant Impacts and Proposed Mitigation with Existing Vegetation Communities

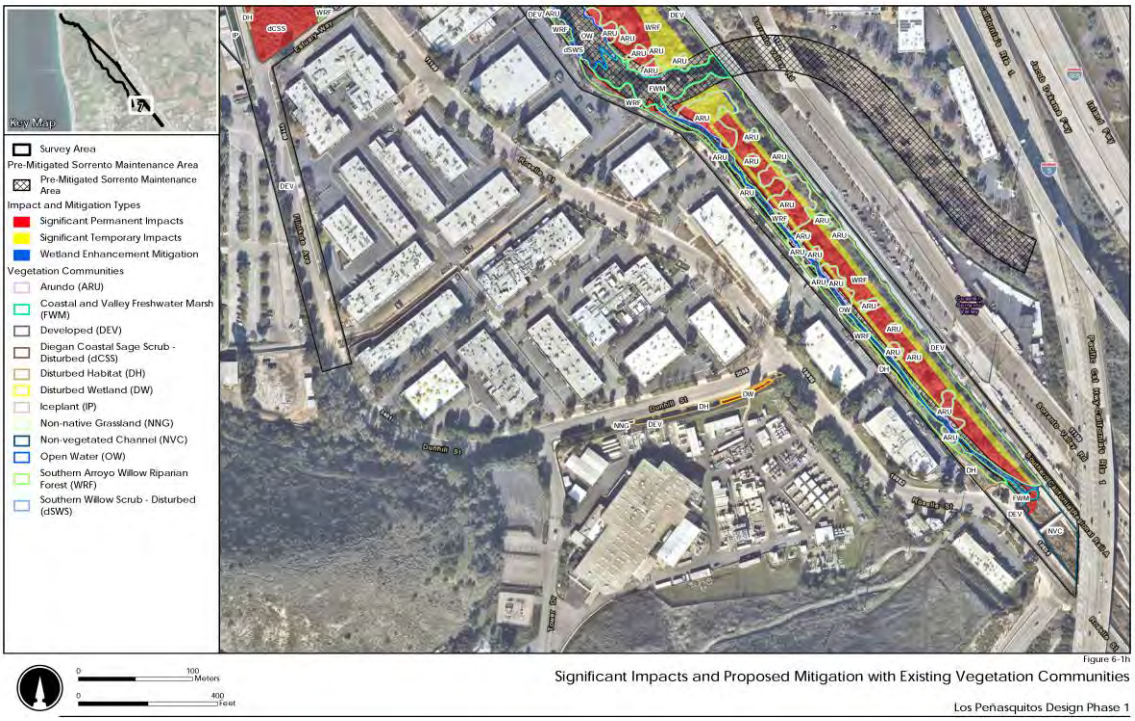


Figure 6-1i: Significant Impacts and Proposed Mitigation with Existing Vegetation Communities

As identified in Section 5.2.1, significant impacts would occur from implementation of the Project due to temporary impacts to wetlands and Tier II and Tier IIIB uplands outside the pre-mitigated area (Table 6-2, Figures 6-1a through 6-1i). Temporary impacts include the majority of the Project including all graded or dredged restoration areas, including those areas that may be subject to additional temporal loss (e.g., temporary construction and adaptive management roads, permanent stockpile), reduced function (e.g., cobble-lined channels and channels subject to maintenance during the adaptive management period), and non-vegetative restoration (e.g., tidal channel dredging). These temporary impacts require 1:1 mitigation through successful implementation of the restoration elements of the Project and it is acknowledged that type conversions of habitat will occur, but that the Restoration Plan/HMMP has been optimized to balance ecological benefits and sustainability. (Table 6-2).

Table 6-2: Mitigation Required for Temporary Impacts to Sensitive Vegetation Communities

Vegetation Community	Temporary Impacts (acres)	Mitigation Ratio	Mitigation Required (acres)	Restoration in Significant Temporary Impact Area (acres)	Additional Restoration in Pre-Mitigated Area (acres)[1]
Wetlands					
Riparian Forest	14.54	1:1	14.54		
Riparian Scrub	6.04	1:1	6.04	15.82	1.75
Disturbed Wetland	1.22	1:1	1.22		
Natural Flood Channel	5.04	1:1	5.04	7.80	0.25
Freshwater Marsh	4.27	1:1	4.27	5.95	0.46
Salt Marsh	31.18	1:1	31.18	33.48	
Wetlands Total	**62.30**		**62.30**	**63.06**	**2.47**
Uplands					
Coastal Sage Scrub	4.96	1:1[2]	4.96	7.09[3]	
Non-Native Grassland	1.83	1:1[2]	1.83		
Uplands Total	**6.78**		**6.78**	**7.09**	
Total	**69.08**		**69.08**	**70.15**	**2.47**

[1] Additional restoration acreage occurs in the MHPA, on publicly-owned lands, excluding any utility easements

[2] Use of the Habitat Acquisition Fund in accordance with the City's 2018 Biology Guidelines would be determined at the time of contribution (prior to notice to proceed) and may request in a 2:1 ratio for coastal sage scrub and 1.5:1 ratio for non-native grassland if planned acquisition in outside the MHPA.

[3] Coastal sage scrub restoration primarily occurs in temporary impact areas with a small portion (0.45 acre) in permanent impact areas (e.g., slopes adjacent to floodplain enhancement 3 and Flintkote Ave.).

As indicated by Table 6-2, all temporary impacts will be restored with a different assemblage of habitats; however, the restored condition is expected to have higher function and be sustainable in the long-term.

Based on the acreages provided in Tables 6-1 and 6-2 all significant impacts to wetlands and associated special-status species from permanent and temporary impacts would be mitigated through Project implementation with a **potential for 4.40 acres of excess wetlands mitigation** consisting of 1.17 acres excess enhancement (Table 6-1; 20.74 total wetlands mitigation minus 19.57 acre wetland mitigation requirement) and 3.22 acre excess restoration (Table 6-2, 63.06 acres wetland restoration minus 62.30 acre wetland mitigation requirement plus 2.47 acres of additional restoration in pre-mitigated area) that may be

considered in the analysis of impacts and mitigation for the future Los Peñasquitos Lagoon Restoration Phase 2 project.

As discussed in Section 5.3.1, the Project includes permanent structures (permanent access roads, outfall structures, and floodplain enhancements) that will result in the loss of 4.6 acres of USACE/RWQCB/CDFW jurisdictional area or significant function, outside the pre-mitigated area (Table 5-4). This impact would be reduced the less than significant with implementation of the Restoration Plan/HMMP which includes 3.39 acres of wetlands re-establishment (Table 6-1) and 2.47 acres of wetlands restoration within the pre-mitigated area (total of 5.86 acres of replacement jurisdictional area), resulting in no-net-loss.

In addition, much of the riparian area adjacent to proposed restoration grading and enhancement areas will be subject to inspection by the Project Biologist during and following construction. The Project Biologist may recommend additional enhancement restoration activities (such as removal and control of riparian understory species) which would be quantified and included in Project monitoring reports. These areas may provide additional mitigation acreages towards the Phase 2 project and/or act as a contingency if portions of the Phase 1 project are unable to meet the success criteria identified in the Restoration Plan/HMMP.

The mitigation measures below are consistent with Mitigation Framework for future projects established in the Final Program Environmental Impact Report (PEIR) for the Los Peñasquitos Lagoon Enhancement Plan. Additional details and clarification to Mitigation Measures Biological-1 and Biological-2 from the Final PEIR are provided below.

PEIR Biological 1 Confirm presence of suitable habitat within the proposed project limits and an appropriate buffer. If suitable habitat is present for sensitive species,

A. Conduct pre-construction surveys to confirm presence/absence of sensitive species.
B. If sensitive species are present, implement the following measures:
    1. For impacts to species identified as candidate, sensitive, or special-status species in the Multiple Species Conservation Program (MSCP), specific management priorities will be undertaken as part of MSCP implementation requirements to ensure that covered species are adequately protected. Priority 1 actions identified in the City of San Diego (City) MSCP Subarea Plan Section 1.5 Framework Management Plan, specifically actions which concerns the Northern Area, will be undertaken to adequately protect covered species (City of San Diego 1997). The actions identified as Priority 2 may be undertaken as applicable.
    2. For impacts to state and/or federally listed species not covered under the MSCP, complete coordination with wildlife agencies as required.

The following measures are incorporated for wetland dependent MSCP covered species.

MM-BIO-1 BELDING'S SAVANNAH SPARROW (State Endangered)

Prior to the issuance of any grading permit, NTP, or Pre-construction meeting, the City Deputy Director (or appointed designee) shall verify that the MHPA boundaries and the following Project requirements regarding the Belding's savannah sparrow are shown on the construction plans:

No clearing, grubbing, grading, or other construction activities shall occur between February 1 and August 1, the breeding season of the Belding's savannah sparrow, until the following requirements have been met to the satisfaction of the City Manager:

A. A qualified biologist (with demonstrable Belding's savannah sparrow survey experience) shall survey those habitat areas within suitable habitat that would be subject to construction noise levels exceeding 60 decibels [dB(A)] hourly average for the presence of the Belding's savannah sparrow. Surveys for the Belding's savannah sparrow shall be conducted pursuant to the protocol survey guidelines established by the California Department of Fish & Wildlife within the breeding season prior to the commencement of any construction. If sparrows are present, then the following conditions must be met:

   i. Between February 1 and August 1, no clearing, grubbing, or grading of occupied sparrow habitat shall be permitted. Areas restricted from such activities shall be staked or fenced under the supervision of a qualified biologist; and

   ii. Between February 1 and August 1, no construction activities shall occur within any portion of the site where construction activities would result in noise levels exceeding 60 dB(A) hourly average at the edge of occupied sparrow habitat. An analysis showing that noise generated by construction activities would not exceed 60 dB(A) hourly average at the edge of occupied habitat must be completed by a qualified acoustician (possessing current noise engineer license or registration with monitoring noise level experience with listed animal species) and approved by the City representative at least two weeks prior to the commencement of construction activities. Prior to the commencement of construction activities during the breeding season, areas restricted from such activities shall be staked or fenced under the supervision of a qualified biologist; or

   iii. At least two weeks prior to the commencement of construction activities, under the direction of a qualified acoustician, noise attenuation measures (e.g., berms, walls) shall be implemented to ensure that noise levels resulting from construction activities will not exceed 60 dB(A) hourly average at the edge of habitat occupied by the Belding's savannah sparrow. Concurrent with the commencement of construction activities and the construction of necessary noise attenuation facilities, noise monitoring* shall be conducted at the edge of the occupied habitat area to ensure that noise levels do not exceed 60 dB(A) hourly average. If the noise attenuation techniques implemented are determined to be inadequate by the qualified acoustician or biologist, then the associated construction activities shall cease until such time that adequate noise attenuation is achieved or until the end of the breeding season (August 1).

   *Note: Construction noise monitoring shall continue to be monitored at least twice weekly on varying days, or more frequently depending on the construction activity, to verify that noise levels at the edge of occupied habitat are maintained below 60 dB(A) hourly average or to the ambient noise level if it already exceeds 60 dB(A) hourly average. If not, other measures shall be implemented in consultation with the biologist and the City representative, as necessary, to reduce noise levels to below 60 dB(A) hourly average or to the ambient noise level if it already exceeds 60 dB(A) hourly average. Such measures may include, but are not limited to, limitations on the placement of construction equipment and the simultaneous use of equipment.

B. If Belding's savannah sparrows are not detected during the protocol survey, the Qualified Biologist shall submit substantial evidence to the City Manager and applicable resource agencies which demonstrates whether or not mitigation measures such as noise walls are necessary between February 1 and August 1 as follows:

   i. If this evidence indicates the potential is high for Belding's savannah sparrow to be present based on historical records or site conditions, then condition a.iii shall be adhered to as specified above.

   ii. If this evidence concludes that no impacts to this species are anticipated, no mitigation measures would be necessary.

MM-BIO-2 LEAST BELL'S VIREO (State Endangered/Federally Endangered)

Prior to the issuance of any grading permit or prior to the preconstruction meeting for public utility projects, the City Manager (or appointed designee) shall verify that the following Project requirements regarding the least Bell's vireo are shown on the construction plans:

No clearing, grubbing, grading, or other construction activities shall occur between March 15 and September 15, the breeding season of the least Bell's vireo, until the following requirements have been met to the satisfaction of the City Manager:

A. A Qualified Biologist (possessing a valid endangered species act section 10(a)(1)(A) recovery permit) shall survey those wetland areas that would be subject to construction noise levels exceeding 60 dB(A) hourly average for the presence of the least Bell's vireo. Surveys for this species shall be conducted pursuant to the protocol survey guidelines established by the U.S. Fish and Wildlife Service within the breeding season prior to the commencement of construction. If the least Bell's vireo is present, the following conditions must be met:

   i. Between March 15 and September 15, no clearing, grubbing, or grading of occupied least Bell's vireo habitat shall be permitted. Areas restricted from such activities shall be staked or fenced under the supervision of a Qualified Biologist; and

   ii. Between March 15 and September 15, no construction activities shall occur within any portion of the site where construction activities would result in noise levels exceeding 60 dB(A) hourly average at the edge of occupied least Bell's vireo or habitat. An analysis showing that noise generated by construction activities would not exceed 60 dB(A) hourly average at the edge of occupied habitat must be completed by a qualified acoustician (possessing current noise engineer license or registration with monitoring noise level experience with listed animal species) and approved by the City Manager at least two weeks prior to the commencement of construction activities. Prior to the commencement of any construction activities during the breeding season, areas restricted from such activities shall be staked or fenced under the supervision of a Qualified Biologist; or

   iii. At least two weeks prior to the commencement of construction activities, under the direction of a qualified acoustician, noise attenuation measures (e.g., berms, walls) shall be implemented to ensure that noise levels resulting from construction activities will not exceed 60 dB(A) hourly average at the edge of habitat occupied by the least Bell's vireo. Concurrent with the commencement of construction activities and the

construction of necessary noise attenuation facilities, noise monitoring* shall be conducted at the edge of the occupied habitat area to ensure that noise levels do not exceed 60 dB(A) hourly average. If the noise attenuation techniques implemented are determined to be inadequate by the qualified acoustician or biologist, then the associated construction activities shall cease until such time that adequate noise attenuation is achieved or until the end of the breeding season (September 16)

*Note: Construction noise monitoring shall continue to be monitored at least twice weekly on varying days, or more frequently depending on the construction activity, to verify that noise levels at the edge of occupied habitat are maintained below 60dB (A) hourly average or to the ambient noise level if it already exceeds 60 dB(A) hourly average. If not, other measures shall be implemented in consultation with the biologist and the City Manager, as necessary, to reduce noise levels to below 60 dB(A) hourly average or to the ambient noise level if it already exceeds 60 dB(A) hourly average. Such measures may include, but are not limited to, limitations on the placement of construction equipment and the simultaneous use of equipment.

B. If least Bell's vireo are not detected during the protocol survey, the Qualified Biologist shall submit substantial evidence to the City Manager and applicable resource agencies which demonstrated whether or not mitigation measures such as noise walls are necessary between March 15 and September 15 as follows:

   i. If this evidence indicates the potential is high for least Bell's vireo to be present based on historical records or site conditions, then condition A.III shall be adhered to.

   ii. If this evidence concludes that no impacts to this species are anticipated, no mitigation measures would be necessary.

MM-BIO-3 LIGHT-FOOTED RIDGWAY'S RAIL (Federally Endangered, State Endangered, State Fully Protected)

Prior to the issuance of any grading permit, NTP, or Pre-construction meeting, the City Deputy Director (or appointed designee) shall verify that the MHPA boundaries and the following Project requirements regarding the light-footed Ridgway's rail are shown on the construction plans:

No clearing, grubbing, grading, or other construction activities shall occur between March 1 and September 15, the breeding season of the light-footed Ridgway's rail, until the following requirements have been met to the satisfaction of the City Manager:

A. A Qualified Biologist (possessing a valid endangered species act section 10(a)(1)(a) recovery permit) shall survey those habitat areas within suitable habitat that would be subject to construction noise levels exceeding 60 dB(A) hourly average for the presence of the light-footed Ridgway's rail. Surveys for the light-footed Ridgway's rail shall be conducted pursuant to the protocol survey guidelines established by the U.S. Fish and Wildlife service within the breeding season prior to the commencement of any construction. If rails are present, then the following conditions must be met:

   i. Between March 1 and September 15, no clearing, grubbing, or grading of occupied rail habitat shall be permitted. Areas restricted from such activities shall be staked or

fenced under the supervision of a Qualified Biologist. The location and extent of occupied rail habitat shall be verified through additional surveys by a Qualified Biologist conducted the day immediately prior to the initiation of work and once a week during construction in the breeding season; and

ii. Between March 1 and September 15, no construction activities shall occur within any portion of the site where construction activities would result in noise levels exceeding 60 dB(A) hourly average at the edge of occupied rail habitat. An analysis showing that noise generated by construction activities would not exceed 60 dB(A) hourly average at the edge of occupied habitat must be completed by a qualified acoustician (possessing current noise engineer license or registration with monitoring noise level experience with listed animal species) and approved by the City representative at least two weeks prior to the commencement of construction activities. Prior to the commencement of construction activities during the breeding season, areas restricted from such activities shall be staked or fenced under the supervision of a Qualified Biologist; or

iii. At least two weeks prior to the commencement of construction activities, under the direction of a qualified acoustician, noise attenuation measures (e.g., berms, walls) shall be implemented to ensure that noise levels resulting from construction activities will not exceed 60 dB(A) hourly average at the edge of habitat occupied by the light-footed Ridgway's rail. Concurrent with the commencement of construction activities and the construction of necessary noise attenuation facilities, noise monitoring* shall be conducted at the edge of the occupied habitat area to ensure that noise levels do not exceed 60 dB(A) hourly average. If the noise attenuation techniques implemented are determined to be inadequate by the qualified acoustician or biologist, then the associated construction activities shall cease until such time that adequate noise attenuation is achieved or until the end of the breeding season (September 16).

*Note: Construction noise monitoring shall continue to be monitored at least twice weekly on varying days, or more frequently depending on the construction activity, to verify that noise levels at the edge of occupied habitat are maintained below 60dB (A) hourly average or to the ambient noise level if it already exceeds 60 dB(A) hourly average. If not, other measures shall be implemented in consultation with the biologist and the City representative, as necessary, to reduce noise levels to below 60 dB(A) hourly average or to the ambient noise level if it already exceeds 60 dB(A) hourly average. Such measures may include, but are not limited to, limitations on the placement of construction equipment and the simultaneous use of equipment.

B. If light-footed Ridgway's rails are not detected during the protocol survey, the Qualified Biologist shall submit substantial evidence to the City Manager and applicable resource agencies which demonstrates whether or not mitigation measures such as noise walls are necessary between March 1 and September 15 as follows:

i. If this evidence indicates the potential is high for light-footed Ridgway's rail to be present based on historical records or site conditions, then condition a.iii shall be adhered to as specified above.

ii. If this evidence concludes that no impacts to this species are anticipated, no mitigation measures would be necessary.

PEIR Biological 2 An evaluation for no net loss of each sensitive habitat type would occur. The net changes of habitat in acreage of habitat within each tiered habitat as defined by the MSCP or other sensitive natural habitats would be quantified. If a net loss of tiered or other sensitive habitat is confirmed, then the following would be implemented with priority given to lands within or adjacent to the Lagoon:

A. Contribution to an appropriate funding mechanism for habitat acquisition; and/or

B. Restoration/enhancement within the Torrey Pines State Natural Reserve.

As indicated above and in Tables 6-1 and 6-2, implementation of the project will result in no net loss of sensitive habitat. **MM-BIO-4** ensures implementation of the project in accordance with the Restoration Plan/HMMP and **MM-BIO-5** addresses the potential net loss of coastal sage scrub.

MM-BIO-4 **Mitigation for Permanent Impacts to Wetlands and Sensitive Vegetation Communities.** The City of San Diego shall implement the Restoration Plan/Habitat Mitigation and Monitoring Plan (Restoration Plan/HMMP) (Dudek 2022), or subsequent update as approved by the resource agencies. As documented in the Restoration Plan/HMMP, monitoring and reporting shall be conducted to document the successful restoration of wetland habitats (based on Year 5 performance standards) that result in no net loss.

As identified in Table 6-2, the Project includes 7.09 acres of coastal sage scrub restoration, but requires 8.48 acres of coastal sage scrub (Table 6-1, 3.52 acres and Table 6-2, 4.96 acres) and 2.07 acres of non-native grassland (Table 6-1, 0.24 acre; Table 6-2, 1.83 acres) mitigation. This results in a coastal sage scrub mitigation deficit of 1.39 acres and a non-native grassland mitigation deficit of 2.07 acres.

MM-BIO-5 **Mitigation for Type Conversion of Sensitive Upland Vegetation.** The City of San Diego shall mitigate for direct impacts to upland habitat by providing 1.39 acres of coastal sage scrub and 2.07 acre of non-native grassland mitigation through one of three equally viable options:

1. revision to habitat restoration design to add at least 3.46 acres of coastal sage scrub restoration and/or enhancement in existing disturbed upland areas onsite. Any proposed additional coastal sage scrub habitat restoration shall be consistent with the current coastal sage scrub habitat restoration details in the Restoration Plan/HMMP including rationale for success, contribution to the MHPA, and annual performance standards.

If revisions to the habitat restoration design cannot feasibly be made to add at least 3.46 acres of coastal sage scrub restoration and/or enhancement, all or the remainder of the mitigation may be provided through:

2. deduction of habitat mitigation credits at an approved upland mitigation bank (e.g., Cornerstone Lands Bank or Marron Valley Mitigation Bank);

If habitat mitigation credits are not available, all or the remainder of the mitigation may be provided through:

3. contribution into the City's Habitat Acquisition Fund in accordance with the City of San Diego Environmentally Sensitive Lands regulations and the mitigation ratios established by the Biology Guidelines (2018).

7.0 Permit Conditions

Unanticipated events can occur on projects, and additional protective measures can better ensure that Project-related impacts remain at a less than significant level.

The Project has been designed with the following requirements to ensure compliance with the City's MSCP Subarea Plan and to avoid or minimize impacts to biological resources to the maximum extent feasible. The following permit conditions shall be incorporated into the Project plans and contract specifications:

Prior to issuance of Notice To Proceed (NTP), the Development Services Department (DSD) Environmental Designee (ED) shall review and approve all construction documents (plans, specifications, details, etc.) to ensure these MMRP requirements are incorporated.

AMM-1 BIOLOGICAL RESOURCE PROTECTION DURING CONSTRUCTION

I. Prior to Construction

A. **Biologist Verification.** The owner/permittee shall provide a letter to the City's Mitigation Monitoring Coordination (MMC) section stating that a Project Biologist (Qualified Biologist) as defined in the City's 2018 Biology Guidelines, has been retained to implement the project's biological monitoring program. The letter shall include the names and contact information of all persons involved in the biological monitoring of the project.

B. **Preconstruction Meeting.** The Qualified Biologist shall attend the preconstruction meeting, discuss the project's biological monitoring program, and arrange to perform any follow-up mitigation measures and reporting including site-specific monitoring, restoration or revegetation, and additional fauna/flora surveys/salvage.

C. **Biological Document.** The Qualified Biologist shall submit all required documentation to MMC verifying that any special mitigation reports including but not limited to, maps, plans, surveys, survey timelines, or buffers are completed or scheduled per City Biology Guidelines, the Multiple Species Conservation Program, the Environmentally Sensitive Lands (ESL) Ordinance, project permit conditions, the Environmentally Sensitive Lands (CEQA), the Endangered Species Acts, and/or other local, state or federal requirements.

D. **BCME.** The Qualified Biologist shall present a Biological Construction Mitigation/Monitoring Exhibit (BCME) that includes the biological documents in I.C above. In addition, restoration/ revegetation plans, plant salvage/relocation requirements, avian or other wildlife surveys/survey schedules (including general avian nesting and USFWS protocol), timing of surveys, wetland buffers, avian construction avoidance areas/noise buffers/ barriers, other impact avoidance areas, and any subsequent requirements determined by the Qualified Biologist and the City's Assistant Deputy Director (ADD)/MMC will be included. The BCME shall include a site plan, written and graphic depiction of the project's biological

mitigation/monitoring program, and a schedule. The BCME shall be approved by MMC and referenced in the construction documents.

E. **Avian Protection Requirements.** To avoid any direct impacts to nesting coastal California gnatcatcher, least Bell's vireo, light-footed Ridgway's rail, Belding's savannah sparrow, yellow warbler, yellow-breasted chat, Clark's marsh wren, Cooper's hawk, or any species identified as listed, candidate, sensitive, or special-status in the MSCP, removal of habitat that supports active nests in the proposed area of disturbance should occur outside of the breeding season for these species (February 1 to September 15). If removal of habitat in the proposed area of disturbance must occur during the breeding season, the Qualified Biologist shall conduct a preconstruction survey to determine the presence or absence of nesting for coastal California gnatcatcher, least Bell's vireo, light-footed Ridgway's rail, Belding's savannah sparrow, yellow warbler, yellow-breasted chat, Clark's marsh wren, Cooper's hawk, and/or any other special-status bird species on the proposed area of disturbance. The preconstruction survey shall be conducted within 10 calendar days prior to the start of construction activities (including removal of vegetation). The Applicant shall submit the results of the preconstruction survey to the City's Development Services Department for review and approval prior to initiating any construction activities. If nesting activities for any of the above-mentioned special-status bird species are detected, a letter report in conformance with the City's Biology Guidelines and applicable state and federal law (e.g., appropriate follow up surveys, monitoring schedules, construction and noise barriers/buffers, etc.) shall be prepared and shall include proposed measures to be implemented to ensure that take of birds or eggs or disturbance of breeding activities is avoided. The report shall be submitted to the City for review and approval and implemented to the satisfaction of the City. The City's MMC section or Resident Engineer and Biologist shall verify and approve that all measures identified in the report are in place prior to and/or during construction.

F. **Resource Delineation.** Prior to construction activities, the Qualified Biologist shall supervise the placement of orange construction fencing or equivalent along the limits of disturbance adjacent to sensitive biological habitats and verify compliance with any other project conditions as shown on the BCME. This shall include flagging plant specimens and delimiting buffers to protect sensitive biological resources (e.g., habitats/flora and fauna species, including nesting birds) during construction. Appropriate steps/care should be taken to minimize attraction of nest predators to the site.

G. **Education.** Prior to commencement of construction activities, the Qualified Biologist shall meet with the owner/permittee or designee and the construction crew and conduct an on-site educational session regarding the need to avoid impacts outside of the approved construction area and to protect sensitive flora and fauna (e.g., explain the avian and wetland buffers, flag system for removal of invasive species or retention of sensitive plants, and clarify acceptable access routes/methods and staging areas).

II. During Construction

A. **Monitoring**. All construction (including access/staging areas) shall be restricted to areas previously identified, proposed for development/staging, or previously disturbed as shown on "Exhibit A" and/or the BCME. The Qualified Biologist shall monitor construction activities as needed to ensure that construction activities do not encroach into biologically sensitive areas or cause other similar damage, and that the work plan has been amended to accommodate any sensitive species located during the pre-construction surveys. In addition, the Qualified Biologist shall document field activity via the Consultant Site Visit Record (CSVR). The CSVR shall be emailed to MMC on the first day of monitoring, the first week of each month, the last day of monitoring, and immediately in the case of any undocumented condition or discovery.

B. **Subsequent Resource Identification.** The Qualified Biologist shall note/act to prevent any new disturbances to habitat, flora, and/or fauna onsite (e.g., flag plant specimens for avoidance during access). If active nests or other previously unknown sensitive resources are detected, all project activities that directly impact the resource shall be delayed until species-specific local, state, or federal regulations have been determined and applied by the Qualified Biologist.

III. Post Construction Measures

A. In the event that impacts exceed previously allowed amounts, additional impacts shall be mitigated in accordance with City Biology Guidelines, ESL and MSCP, State CEQA Guidelines, and other applicable local, state, and federal law. The Qualified Biologist shall submit a final BCME/report to the satisfaction of the City ADD/MMC within 30 days of construction completion.

AMM-2 COASTAL CALIFORNIA GNATCATCHER (Federally Threatened)

Prior to the issuance of any grading permit, Notice to Proceed, or pre-construction meeting, the City Deputy Director (or appointed designee) shall verify that the Multi Habitat Planning Area (MHPA) boundaries and the following project requirements regarding the coastal California gnatcatcher are shown on the construction plans:

No clearing, grubbing, grading, or other construction activities shall occur between March 1 and August 15, the breeding season of the coastal California gnatcatcher, until the following requirements have been met to the satisfaction of the City Manager:

A. A Qualified Biologist (possessing a valid Endangered Species Act section 10(a)(1)(a) recovery permit) shall survey those habitat areas within the MHPA that would be subject to construction noise levels exceeding 60 dB(A) hourly average for the presence of the coastal California gnatcatcher. Surveys for the coastal California gnatcatcher shall be conducted pursuant to the protocol survey guidelines established by the U.S. Fish and Wildlife Service

within the breeding season prior to the commencement of any construction. If gnatcatchers are present, then the following conditions must be met:

i. Between March 1 and August 15, no clearing, grubbing, or grading of occupied gnatcatcher habitat shall be permitted. Areas restricted from such activities shall be staked or fenced under the supervision of a Qualified Biologist; and

ii. Between March 1 and August 15, no construction activities shall occur within any portion of the site where construction activities would result in noise levels exceeding 60 dB(A) hourly average at the edge of occupied gnatcatcher habitat. An analysis showing that noise generated by construction activities would not exceed 60 dB(A) hourly average at the edge of occupied habitat must be completed by a qualified acoustician (possessing current noise engineer license or registration with monitoring noise level experience with listed animal species) and approved by the City representative at least 2 weeks prior to the commencement of construction activities. Prior to the commencement of construction activities during the breeding season, areas restricted from such activities shall be staked or fenced under the supervision of a qualified biologist; or

iii. At least 2 weeks prior to the commencement of construction activities, under the direction of a qualified acoustician, noise attenuation measures (e.g., berms, walls) shall be implemented to ensure that noise levels resulting from construction activities will not exceed 60 dB(A) hourly average at the edge of habitat occupied by the coastal California gnatcatcher. Concurrent with the commencement of construction activities and the construction of necessary noise attenuation facilities, noise monitoring* shall be conducted at the edge of the occupied habitat area to ensure that noise levels do not exceed 60 dB(A) hourly average. If the noise attenuation techniques implemented are determined to be inadequate by the qualified acoustician or biologist, then the associated construction activities shall cease until such time that adequate noise attenuation is achieved or until the end of the breeding season (August 16).

*Note: Construction noise shall continue to be monitored at least twice weekly on varying days, or more frequently depending on the construction activity, to verify that noise levels at the edge of occupied habitat are maintained below 60 dB(A) hourly average or to the ambient noise level if it already exceeds 60 dB(A) hourly average. If not, other measures shall be implemented in consultation with the biologist and the City representative, as necessary, to reduce noise levels to below 60 dB(A) hourly average or to the ambient noise level if it already exceeds 60 dB(A) hourly average. Such measures may include, but are not limited to, limitations on the placement of construction equipment and the simultaneous use of equipment.

B. If coastal California gnatcatchers are not detected during the protocol survey, the Qualified Biologist shall submit substantial evidence to the City Manager and applicable resource agencies that demonstrates whether or not mitigation measures such as noise walls are necessary between March 1 and August 15, as follows:

   i. If this evidence indicates the potential is high for coastal California gnatcatcher to be present based on historical records or site conditions, then condition A.iii shall be adhered to as specified above.

   ii. If this evidence concludes that no impacts to this species are anticipated, no mitigation measures would be necessary.

AMM-3 CROTCH'S BUMBLE BEE (State Proposed Endangered)

Should this species no longer a be a state candidate for listing or state listed as threatened or endangered at the time of the preconstruction meeting, then no avoidance measures shall be required.

1. **Prior to the Notice to Proceed (NTP)** for any construction permits, including but not limited to, the first Grading Permit, Demolition Plans/Permits and Building Plans/Permits, the Development Services Department (DSD) Director's Environmental Designee shall verify the following project requirements regarding the Crotch's bumble bee are shown on the construction plans:

   A. To avoid impacts to Crotch's bumble bee, removal of habitat in the proposed area of disturbance must occur outside of the colony active period between April 1 through August 31. If removal of habitat in the proposed area of disturbance must occur during the colony active period, a Qualified Biologist shall conduct a pre-construction survey to determine the presence or absence of Crotch's bumble bee nesting within the proposed area of disturbance and follow the methodology developed consistent with the California Department of Fish Wildlife (CDFW) Survey Considerations for California Endangered Species Act (CESA) Candidate Bumble Bee Species (CDFW 2023). If any bumble bees are determined to be present, then a photographic survey following CDFW guidance (i.e., CDFW Survey Conservations for CESA Candidate Bumble Bee Species) shall be required. If additional activities (e.g., capture or handling) are deemed necessary based on photographic surveys, then the Qualified Biologist shall obtain required authorization via a Memorandum of Understanding or Scientific Collecting Permit pursuant to CDFW Survey Conservations for CESA Candidate Bumble Bee Species (CDFW 2023). Survey methods that involve lethal take of species are not acceptable. Alternative methods of surveys may be approved by CDFW on a project-by-project basis.

   B. A Qualified Biologist must demonstrate the following qualifications: at least 40 hours of experience surveying for bee or other co-occurring aerial invertebrate species (such as Quino checkerspot butterfly) and who have completed a Crotch's bumble bee detection/identification training by an expert Crotch's bumble bee entomologist; or the biologist must have at least 20 hours of experience directly observing Crotch's bumble bee.

   C. The pre-construction survey shall be conducted by the Qualified Biologist within 30 calendar days prior to the start of construction activities (including removal of

vegetation) and shall include a minimum of three (3) visits, a minimum of one (1) week apart.

D. The Qualified Biologist/owner permittee shall submit the results of the pre-construction survey to City DSD (Mitigation Monitoring and Coordination) City Planning Department (MSCP) staff and CDFW for review and written approval prior to initiating any construction activities.

E. If pre-construction surveys identify active Crotch's bumble bee nest colonies or foraging individuals, the Qualified Biologist shall notify CDFW in writing and establish, monitor, and maintain no-work buffers around the nest(s) and any associated floral resources. The size and configuration of the no-work buffer shall be based on best professional judgment of the Qualified Biologist in consultation with CDFW. At a minimum, the buffer shall provide at least 50 feet of clearance from construction activities around any nest entrances and maintain disturbance-free airspace between the nest and nearby floral resources. Construction activities shall not occur within the no-work buffers until the colony is no longer active (i.e., no bees are seen flying in or out of the nest for three consecutive days indicating the colony has completed its nesting season and the next season's queens have dispersed from the colony).

F. If Crotch's bumble bee are identified during species-specific surveys, the City shall pursue an Incidental Take Permit. Mitigation for direct impacts to Crotch's bumble bee will be fulfilled through compensatory mitigation at a minimum 1:1 nesting habitat replacement of equal or better functions and values to those impacted by the project, or as otherwise determined through the Incidental Take Permit process. If foraging individuals are detected and an Incidental Take Permit will not be pursued, compensatory mitigation for loss of foraging habitat will be provided at a 1:1 replacement ratio.

AMM-4 American Peregrine Falcon

Prior to the issuance of any Notice to Proceed, or pre-construction meeting, the City Deputy Director (or appointed designee) shall verify that the MHPA boundaries and the following project requirements regarding the American Peregrine Falcon are shown on the construction plans:

No clearing, grubbing, grading, or other construction activities shall occur between March 1 and June 30, the breeding season of the American Peregrine Falcon, until the following requirements have been met to the satisfaction of the Deputy Director (or appointed designee):

A. A Qualified Biologist shall survey those habitat areas within suitable habitat that would be subject to construction noise levels exceeding 60 dB(A) hourly average for the presence of the American Peregrine Falcon. Surveys for the American Peregrine Falcon shall be conducted within the breeding season prior to the commencement of any construction. If falcons are present, then the following conditions must be met:

   i. Between March 1 and June 30, no clearing, grubbing, or grading of occupied falcon habitat shall be permitted. Areas restricted from such activities shall be staked or fenced under the supervision of a Qualified Biologist. The location and extent of occupied falcon habitat shall be verified through additional surveys by a Qualified Biologist conducted

the day immediately prior to the initiation of work and once a week during construction in the breeding season; and

ii. Between March 1 and June 30, no construction activities shall occur within any portion of the site where construction activities would result in noise levels exceeding 60 dB(A) hourly average at the edge of occupied falcon habitat. An analysis showing that noise generated by construction activities would not exceed 60 dB(A) hourly average at the edge of occupied habitat must be completed by a qualified acoustician (possessing current noise engineer license or registration with monitoring noise level experience with listed animal species) and approved by the City representative at least two weeks prior to the commencement of construction activities. Prior to the commencement of construction activities during the breeding season, areas restricted from such activities shall be staked or fenced under the supervision of a Qualified Biologist; or

iii. At least 2 weeks prior to the commencement of construction activities, under the direction of a qualified acoustician, noise attenuation measures (e.g., berms, walls) shall be implemented to ensure that noise levels resulting from construction activities will not exceed 60 dB(A) hourly average at the edge of habitat occupied by the American Peregrine Falcon. Concurrent with the commencement of construction activities and the construction of necessary noise attenuation facilities, noise monitoring* shall be conducted at the edge of the occupied habitat area to ensure that noise levels do not exceed 60 dB(A) hourly average. If the noise attenuation techniques implemented are determined to be inadequate by the qualified acoustician or biologist, then the associated construction activities shall cease until such time that adequate noise attenuation is achieved or until the end of the breeding season (September 16).

*Note: Construction noise monitoring shall continue to be monitored at least twice weekly on varying days, or more frequently depending on the construction activity, to verify that noise levels at the edge of occupied habitat are maintained below 60dB (A) hourly average or to the ambient noise level if it already exceeds 60 dB(A) hourly average. If not, other measures shall be implemented in consultation with the biologist and the City representative, as necessary, to reduce noise levels to below 60 dB(A) hourly average or to the ambient noise level if it already exceeds 60 dB(A) hourly average. Such measures may include, but are not limited to, limitations on the placement of construction equipment and the simultaneous use of equipment.

B. If American Peregrine Falcon are not detected during the pre-construction nesting survey, no additional measures would be necessary.

AMM-5 White-Tailed Kite (State Fully Protected).

Fully protected species may not be taken or possessed except with take permit authorization from CDFW, and only under specific circumstances. Prior to the issuance of any Notice to Proceed, or pre-construction meeting, the City Deputy Director (or appointed designee) shall verify that the MHPA boundaries and the following project requirements regarding the White-Tailed Kite are shown on the construction plans:

Impacts to white-tailed kite individuals shall be fully avoided. A qualified biologist shall remain on site during all vegetation clearing and perform periodic site inspections (1-2 times/week)

during grading and vegetation removal activities. Should a white-tailed kite nest be detected, a buffer of a minimum of 500 feet shall be established, and no activity shall occur within the buffer zone until the biologist determine, and CDFW confirms, that all chicks have fledged and are no longer reliant on the nest site.

AMM-6 Caluerpa.

The City shall retain a qualified biologist to conduct a Caulerpa spp. survey to identify potential existence of invasive Caulerpa spp. within the tidal dredging area in accordance with the Caulerpa Control Protocol: https://media.fisheries.noaa.gov/2021-12/caulerpacontrol-protocol-v5.pdf (October 2021) prior to initiation of tidal channel dredging. Any sightings of Caulerpa spp. shall be reported within 24 hours to CDFW (Caulerpa@wildlife.ca.gov) and the National Marine Fisheries Service (NMFS) at (562) 980-4037 and nmfs.wcr.caulerpa@noaa.gov.

8.0 References

AECOM
2020 Program Environmental Report for the Los Penasquitos Lagoon Enhancement Plan, San Diego, California. March 2020.

Baldwin, B. G., D. H. Goldman, D. J. Keil, R. Patterson, T. J. Rosatti, and D. H. Wilken, editors
2012 The Jepson Manual: Vascular Plants of California, Second Edition. University of California Press, Berkeley, California.

Beier, P., and S. Loe
1992 A Checklist for Evaluating Impacts to Wildlife Movement Corridors. Wildlife Society Bulletin 20:434–440.

Blackhawk Environmental
2020a Focused Rare Plant Survey Report, Los Penasquitos Lagoon Restoration Project – Phase 1, San Diego, San Diego County, CA. August 31, 2020.

2020b Jurisdictional Delineation Report, Los Penasquitos Lagoon Restoration Project – Phase 1, San Diego, San Diego County, CA.

2022a. Los Peñasquitos Lagoon Restoration Project – Phase 1 2022 Least Bell's Vireo & Southwestern Willow Flycatcher Survey Report San Diego, San Diego County, CA

2022b. Los Peñasquitos Lagoon Restoration Project – Phase 1 2022 Light-footed Ridgway's Rail & Belding's Savannah Sparrow Survey Report San Diego, San Diego County, CA

Calflora
2016 Information on California plants for education, research and conservation, based on data contributed by dozens of public and private institutions and individuals, including the Consortium of Calif. Herbaria. [web application]. Berkeley, California: The Calflora Database [a non-profit organization]. Available at http://www.calflora.org/ (Accessed: July 7, 2016).

2019 Information on California plants for education, research and conservation. [web application]. Berkeley, California: The Calflora Database [a non-profit organization]. Available: http://www.calflora.org/. Accessed January 2019.

California Department of Fish and Game (CDFG)
1994 Environmental Services Division (ESD). A Field Guide to Lake and Streambed Alteration Agreements, Sections 1600-1607, California Fish and Game Code.

2001 Coastal Marshes – Emergent Wetlands. California Living Marine Resources: A Status Report. December, 2001.

California Department of Fish and Wildlife (CDFW)
2008 CEQA Guidelines. Statutes and Guidelines for Implementation of the California Environmental Quality Act as amended.

2009 Protocols for Surveying and Evaluating Impacts to Special-status Native Plant Populations and Natural Communities. Sacramento, CA: California Department of Fish and Game, November 24, 2009.

2014 Complete List of Amphibian, Reptile, Bird and Mammal Species in California. California Department of Fish and Wildlife. July, 2014.

2016 California Natural Diversity Database (CNDDB). RareFind Version 3.1.0. Database Query for the Del Mar and Del Mar OE W, California, USGS 7.5-minute quadrangles. Wildlife and Habitat Data Analysis Branch.

2023 Survey Considerations for California Endangered Species Act (CESA) Candidate Bumble Bee Species. June 6, 2023.

California Department of Parks and Recreation (DPR)

1984 San Diego Coastal State Park System General Plan, Volume 8 – Torrey Pines State Beach and State Reserve. July 1984.

2017 Survey Results for the Coastal California Gnatcatcher at Torrey Pines State Natural Reserve/State Beach, San Diego County, California, 2016. March 10, 2017.

California Invasive Plant Council (CAL-IPC)

2006 California Invasive Plant Inventory. CAL-IPC Publication 2006-02. California Invasive Plant Council, Berkeley, CA.

California Native Plant Society (CNPS)

2016 Rare Plant Program. Inventory of Rare and Endangered Plants (online edition, v8-02). California Native Plant Society, Sacramento, CA. Available at http://www.rareplants.cnps.org (accessed 2016).

2017 Inventory of Rare and Endangered Plants (online edition, v8-02). California Native Plant Society. Sacramento, California. http://www.cnps.org/inventory. Accessed January 2017.

2020a Calscape. https://calscape.org [accessed on August 3, 2020].

2020b Rare Plant Program. Inventory of Rare and Endangered Plants (online edition, v8-02). California Native Plant Society, Sacramento, CA. Available at http://www.rareplants.cnps.org.

California State Assembly

2018 California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000 – 15387. Available from http://ccr.oal.ca.gov/

California State Water Resources Control Board

2018 Porter-Cologne Water Quality Control Act, Water Code Division 7 and Related Sections (As amended, including Statutes 2017). California State Water Resources Control Board. Sacramento, California. https://www.waterboards.ca.gov/laws_regulations/docs/portercologne.pdf

California Wetland Monitoring Workgroup (CWMW)

2013a Riverine Wetlands Field Book, Version 6.1

2013b Perennial Estuarine Wetlands Field Book, Version 6.1

City of San Diego

1997a City of San Diego MSCP Subarea Plan.

1997b Implementing Agreement by and between U.S. Fish and Wildlife Service, California Department of Fish and Game, and City of San Diego to Establish a MSCP for the Conservation of Threatened, Endangered, and Other Species in the Vicinity of San Diego, California.

1998 Final Multiple Species Conservation Plan. MSCP Plan. August 1998.

2011a San Diego Municipal Code, Land Development Code, Biology Guidelines. Amended 2011.

2011b California Environmental Quality Act Significance Determination Thresholds. Developmental Services Department. January 2011.

2018 City of San Diego Land Development - Biology Guidelines. Revised February 2018.

2020 City of San Diego California Environmental Quality Act Significance Determination Thresholds. Revised December 2020.

Coppock, D.

1985 (updated 2016) Los Peñasquitos Lagoon Enhancement Plan and Program. Prepared for Los Peñasquitos Lagoon Foundation and State Coastal Conservancy. 119 pp.

Conway, C.J.

2011 Standardized North American Marsh Bird Monitoring Protocol. *Waterbirds* 34(3):319-346.

Cowardin, L.M.

1979 Classification of Wetlands and Deepwater Habitats of the United States. U.S. Fish and Wildlife Service.

Crooks, J.

1997 The Status of mammalian Carnivores in Torrey Pines State Reserve. Report prepared by University of California, Santa Cruz for California Department of Parks and Recreation

Cypher, E.A.

2002 General Rare Plant Survey Guidelines. California State University, Stanislaus. Endangered Species Recovery Program, Revised July 2002.

ECORP

2016 Torrey Pines State Natural Reserve Utility Modernization Project Short-Leaved Dudleya (Dudleya brevifolia) Survey Report. August 2, 2016.

ECORP Consulting Inc. and Blackhawk Environmental

2019 Torrey Pines State Natural Reserve Utility Modernization Project Short- Biological Technical Report. June 5, 2019.

Environmental Science Associates (ESA)

2015 Los Peñasquitos Lagoon Enhancement Plan.

2016a Draft Biological Technical Report, Sorrento/Los Penasquitos Waterways Restoration and Improvement Program, City of San Diego, San Diego County, California. June 21, 2016.

2016b 45-Day Report for Least Bell's Vireo and Southwestern Willow Flycatcher Surveys Conducted for the Sorrento /Los Peñasquitos Waterways Restoration and Improvement Project, San Diego, California. September 13, 2016.

2016c 45-Day Report for Coastal California Gnatcatcher Surveys Conducted for the Sorrento /Los Peñasquitos Waterways Restoration and Improvement Project, San Diego, California.

2016d Biological Resources Constraints Analysis, Sorrento Valley Channel Restoration Project, City of San Diego, San Diego County, California. April 2016.

Forman, R.T.T.
1987 Emerging Directions in Landscape Ecology and Applications in Natural Resource Management. In R. Herrmann and T. B. Craig (eds.), Conference on Science in National Parks: The Fourth Triennial Conference on Research in the National Parks and Equivalent Reserves, pp. 59–88. The George Wright Society and the U.S. National Park Service.

Google
2020 Google Earth. US Department of State Geographer. Data SIO, U.S. Navy, NGA, GEBCO. earth.google.com/.

GretagMacBeth
2000 Munsell Soil Color Charts. X-rite. Grand Rapids, Michigan.

Hastings, M.
2016 Personal communication. February 29; March 1 and 2, 2016.

Hayworth, A.
2015 2015 Least Bell's Vireo Focused Survey Results for the Sorrento Valley Double Track Transit Project. City of San Diego, California.

Hickman, J.C. (Ed.).
1993 The Jepson Manual, Higher Plants of California. University of California Press, Berkeley and Los Angeles, California.

Holland, Robert F.
1986 Preliminary Descriptions of the Terrestrial Natural Communities of California. State of California, the Resources Agency. Department of Fish and Game.

Jepson Flora Project (eds.)
2014 Jepson eFlora. http://ucjeps.berkeley.edu/eflora/.

2020 Jepson eFlora. http://ucjeps.berkeley.edu/eflora/.

Klauber, L. M.
1972 Rattlesnakes: Their Habits, Life Histories, and Influence on Mankind. University of California Press, Berkeley. 1533 pp.

Konecny, J.
2015 Results of a Focused Survey for the Light-footed Ridgway's Rail at the Sorrento Valley Double Track Project, City of San Diego, San Diego County, California, 2015.

Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin
2016 The National Wetland Plant List: 2016 wetland ratings. Phytoneuron 2016-30: 1-17. Published 28 April 2016. ISSN 2153 733X

National Agriculture Imagery Program (NAIP)
2014 http://www.fsa.usda.gov/programs-and-services/aerial-photography/imagery-programs/naip-imagery/index

Natural Resources Conservation Service (NRCS)
1968 National Cooperative Soil Survey. New York City, New York.

2006 California List of Hydric Soils.

2020 Web Soil Survey. U.S. Department of Agriculture. Accessible online at: http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm/.

Oberbauer, T., Kelly, M., and J. Buegge
2008 Draft Vegetation Communities of San Diego County. Based on "Preliminary Descriptions of the Terrestrial Natural Communities of California", Robert F. Holland, Ph.D., October 1986. County of San Diego, March 2008.

Ralph, C. J., Geupel, G. R., Pyle, P., Martin, T. E., and DeSante, D. F.
1993 Handbook of field methods for monitoring landbirds. General Technical Report PSW-GTR-144. Pacific Southwest Research Station, Albany, CA.

Rebman, J. P. and M. G. Simpson
2014 Checklist of the Vascular Plants of San Diego County, 5th edition. San Diego Natural History Museum and San Diego State University. San Diego, California.

Rosenberg, D. K., B. R. Noon, and E. C. Meslow
1997 Biological Corridors: Form, Function, and Efficacy. BioScience 47:677–687.

Rosenfield, R. N., and J. Bielefeldt
1993 Cooper's Hawk. In A. Poole and F. Gill [eds.]. The Birds of North America, No. 75. Philadelphia: The Academy of Natural Sciences; Washington, D.C.; The American Ornithologists' Union.

San Diego County
2012 San Diego County Code of Regulatory Ordinances Chapter 6 Resource Protection Ordinances. San Diego, California.

San Diego County Department of Planning and Land Use Department of Public Works
2010a Biological Mitigation Ordinance. An Excerpt from The San Diego County Code of Regulatory Ordinances. San Diego, California.

2010b Guidelines for Determining Significance and Report Format and Content Requirements. Biological Resources. Fourth Revision. San Diego, California.

2010c Biological Mitigation Ordinance. An Excerpt from The San Diego County Code of Regulatory Ordinances. San Diego, California

2010d Report Format and Content Requirements. Biological Resources. Fourth Revision. San Diego, California.

SanGIS
2015 SANDAG GIS Data Warehouse. http://www.sangis.org/

Sawyer, J.O., T. Keeler-Wolf, J.M. Evens
2009 A Manual of California Vegetation, Second Edition. California Native Plant Society. Sacramento, California.

Schaefer Ecological Services
2016 Los Penasquitos Lagoon Bridge Replacement Project: July 2016 Avian Preconstruction Survey Summary

2017 Los Penasquitos Lagoon Bridge Replacement Project 2017 Pre-breeding Avian Season Survey Summary

2019 Avian Status Survey Report for Light-Footed Ridgway's Rail and Belding's Savannah Sparrow in Los Penasquitos Lagoon. Submitted to" California State Parks, San Diego Coast District. June 2019.

Schweiger, E. W., J. E. Diffendorfer, R. D. Holt, R. Pierotti, and M. S. Gaines
2000 The Interaction of Habitat Fragmentation, Plant, and Small Mammal Succession in an Old Field. Ecological Monographs 70:383–400.

San Francisco Estuary Institute (SFEI)
2014 Northern San Diego County Lagoons Historical Ecology GIS data.

Smith, D.
2016 Personal communication. February 19, 2016.

Sogge, M.K., Ahlers, Darrell, and Sferra, S.J.
2010 A Natural History Summary and Survey Protocol for the Southwestern Willow Flycatcher: U.S. Geological Survey Techniques and Methods 2A-10.

Soulé, M.
2003 Page 5 in: Missing Linkages: Restoring Connectivity to the California Landscape. California Wilderness Coalition. 79 pp.

Sproul, F., T. Keeler-Wolf, P. Gordon-Reedy, J. Dunn, A. Klein, K. Harper
2011 Vegetation Classification Manual for Western San Diego County (VCMWSDC), First Edition. AECOM, California Department of Fish and Game, Vegetation Classification and Mapping Program, Conservation Biology Institute. February 2011.

SSURGO online database
2016

Stebbins, R. C.
2003 A Field Guide to Western Reptiles and Amphibians. Third edition. Houghton Mifflin Co., Boston. 533 pp.

Tetra Tech
2010 Los Penasquitos Lagoon Sediment/Siltation TMDL. October 20, 2010.

Torrey Pines State Natural Reserve (TPSNR)
2015 CAGN 45-day Letter Report – 2015 Survey Season.

United States

1972 Federal Water Pollution Control Act Amendments of 1972 (U.S.C. 1251 et seq.)

U.S. Army Corps of Engineers (USACE)

1987 Corps of Engineers Wetlands Delineation Manual. Environmental Laboratory U.S. Army Corps of Engineers, Waterways Experiment Station, Wetlands Research Program Technical Report Y-87-1. Vicksburg, Mississippi.

2005 Regulatory Guidance Letter No. 05-05, Ordinary High Water Mark Identification.

2008 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0), ed. J.S. Wakeley, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-08-28. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

United States Department of Agriculture Natural Resources Conservation Service (NRCS)

1973 (updated). Soil survey San Diego Area, California. Available at http://soildatamart.nrcs.usda.gov/Manuscripts/CA638/0/part2.pdf and https://soilseries.sc.egov.usda.gov/osdnamequery.asp. Accessed February 26, 2016.

2020 Natural Resources Conservation Service. Wetland Indicator Status Plants Database. https://plants.usda.gov/wetinfo.html

United States Fish and Wildlife Service (USFWS)

1991 Summary of the Proposed Rule to List the Coastal California Gnatcatcher (Polioptila californica) as Endangered in California and Baja, Mexico. September. 114 pp.

1996a Guidelines for conducting and reporting botanical inventories for federally listed, proposed, and candidate plants. Sacramento, California.

1996b National List of Vascular Plant Species that occur in Wetlands.

1997 Coastal California Gnatcatcher (Polioptila californica californica) Presence/Absence Survey Guidelines. US Fish & Wildlife Service Carlsbad Fish & Wildlife Office. Carlsbad, CA. February 28, 1997.

1998 National List of Vascular Plant Species that occur in Wetlands.

2001 Least Bell's Vireo Survey Guidelines. Carlsbad, California. January 19, 2001.

2009 Survey Guidelines to Determine Presence/Absence of the Light-footed Clapper Rail in Southern California; Recommendations of the Clapper Rail Study Team (John Konecny, Richard Zembal, Susan Hoffman). Draft Recommendations Provided to the Fish and Wildlife Service. 2pp.

2015a Species Occurrence Data. http://www.fws.gov/carlsbad/GIS/CFWOGIS.html

2015b Fish and Wildlife Service Critical Habitat for Threatened and Endangered Species, Critical Habitat Portal. http://ecos.fws.gov/crithab/.

2016a U.S. FWS Threatened & Endangered Species Active Critical Habitat Report. https://ecos.fws.gov/ecp/report/table/critical-habitat.html

2016b National Wetlands Inventory (NWI). https://www.fws.gov/wetlands/.

2020 National Wetlands Inventory (NWI). https://www.fws.gov/wetlands/.

United States Geological Survey (USGS)
2003 Seamless Data Distribution System. Aerial photography of the site.

2011 7.5-minute topographic quadrangle map for Del Mar and Del Mar OE W, California.

Unitt, P.
2004 San Diego County Bird Atlas. San Diego Natural History Museum & Ibis Publishing Company, San Diego. 645 pp.

Weston
2009 Los Peñasquitos Lagoon TMDL – Watershed Phase I Sediment Source Identification Study. Final Report prepared for the City of San Diego.

Wetland Training Institute (WTI)
1999 Field Guide for Wetland Delineation (1987 USACE Manual).

White and Greer
2006 The Effects of Watershed Urbanization on the Stream Hydrology and Riparian Vegetation of Los Penasquitos Creek, California. Landscape and Urban Planning. 74. 125-138. 10.1016/ j.landurbplan.2004.11.015.

Williams et al
1997 The physical, chemical, and biological monitoring of Los Peñasquitos Lagoon, 1996-97. Annual report prepared for the Los Peñasquitos Lagoon Foundation. Prepared by Pacific Estuarine Research Laboratory. November 1997.

Williams et al
2002 Hydraulic geometry: A geomorphic design tool for tidal marsh channel evolution in wetland restoration projects. Restoration Ecology 10:577–590.

Zembal, R. and S.M. Hoffman
2010 A survey of Belding's savannah sparrow (*Passerculus sandwichensis beldingi*) in California 2010.

Zembal, R. and S.M. Hoffman, and J. Konecny
2009 Survey Guidelines to Determine Presence/Absence of the Light-footed Clapper Rail in Southern California; Recommendations of the Clapper Rail Study Team.

Zembal, R. and S.M. Hoffman, and J. Konecny
2015 Status and Distribution of the Light-footed (Ridgway's) Rail in California. 2015 Season. State of California, the Resources Agency, Department of Fish and Wildlife. Wildlife Division.

Appendix A: Plant Species List

Appendix A. Plant Species Observed within the Phase I BSA

Scientific Name	Common Name
FERNS	
AZOLLACEAE	Mosquito Fern Family
Azolla filiculoides	Mosquito fern
PTERIDACEAE	Brake Family
Adiantum capillus-veneris	Southern maidenhair
Pentagramma triangularis ssp. maxonii	Maxon's silverback fern
Pentagramma triangularis ssp. triangularis	California goldback fern

GYMNOSPERMS	
PINACEAE	Pine Family
Pinus halapensis	Aleppo pine *
Pinus torreyana	Torrey pine ^

MAGNOLIDS	
LAURACEAE	Laurel Family
Cinnamomum camphora	Camphor tree
SAURURACEAE	Lizard-Tail Family
Anemopsis californica	Yerba mansa

EUDICOTS	
ADOXACEAE	Adoxa Family
Sambucus nigra ssp. caerulea	Blue elderberry
AIZOACEAE	Fig-Marigold Family
Carpobrotus edulis	Hottentot-fig *
Mesembryanthemum crystallinum	Crystalline iceplant *
Mesembryanthemum nodiflorum	Slender-leaf iceplant *
Sesuvium verrucosum	Western sea purslane
AMARANTHACEAE	Amaranth Family
Amaranthus albus	Pigweed amaranth *
ANACARDIACEAE	Sumac Family
Malosma laurina	Laurel sumac
Rhus integrifolia	Lemonadeberry
Schinus molle	Peruvian pepper tree *
Schinus terebinthifolius	Brazilian pepper tree *
Searsia lancea	African sumac *
Toxicodendron diversilobum	Poison oak

APIACEAE	Carrot Family
Anthriscus caucalis	Bur chervil *
Apiastrum angustifolium	Wild celery
Apium graveolens	Common celery *
Conium maculatum	Poison hemlock *
Daucus pusillus	Rattlesnake weed
Foeniculum vulgare	Sweet fennel *
APOCYNACEAE	Dogbane Family
Nerium oleander	Oleander *
Vinca major	Greater periwinkle *
ARALIACEAE	Ginseng Family
Hedera helix	English ivy *
Hydrocotyle umbellata	Manyflower marshpennywort
ASPARAGACEAE	Asparagus Family
Asparagus officinalis ssp. *officinalis*	Garden asparagus *
ASTERACEAE	Aster - Daisy - Composite Family
Acourtia microcephala	Sacapellote
Ambrosia psilostachya	Western ragweed
Amblyopappus pusillus	Pineapple-weed *
Anthemis cotula	Stinking chamomile *
Artemisia californica	California sagebrush
Artemisia douglasiana	Douglas mugwort
Artemisia dracunculus	Tarragon
Artemisia palmeri (CRPR 4.2)	San Diego sagewort +
Baccharis pilularis	Coyote brush
Baccharis salicifolia	Mule fat
Baccharis salicina	Willow baccharis
Baccharis sarothroides	Broom baccharis
Brickellia californica	California brickellbush
Carduus pycnocephalus	Italian thistle *
Centaurea melitensis	Tocalote *
Chaenactis glabriuscula var. *glabriuscula*	Yellow pincushion
Cirsium occidentale var. *californicum*	California thistle
Corethrogyne filaginifolia var. *linifolia* (CRPR 1B.1)	Del Mar sand-aster + ^
Cotula coronopifolia	African brass-buttons *
Deinandra fasciculata	Clustered tarweed
Delairea odorata	Cape ivy *
Dittrichia graveolens	Stinkwort *
Encelia californica	California encelia
Erigeron bonariensis	Flax-leaf fleabane *

Erigeron canadensis	Horseweed
Erigeron foliosus var. *foliosus*	Leafy daisy
Eriophyllum confertiflorum	Golden-yarrow
Gamochaeta pensylvanica	Pennsylvania everlasting *
Glebionis coronaria	Crown daisy *
Hazardia squarrosa	Saw-toothed goldenbush
Hedypnois cretica	Crete weed *
Helminthotheca echioides	Bristly ox-tongue *
Heterotheca grandiflora	Telegraph weed
Heterotheca sessiflora ssp. sessiflora (CRPR 1B.1)	Sessileflower false goldenaster +
Hypochaeris glabra	Smooth cat's ear *
Isocoma menziesii var. sedoides	Coastal goldenbush
Isocoma menziesii var. vernonoides	Coastal goldenbush
Iva hayesiana (CRPR 2B.2)	San Diego marsh-elder +
Jaumea carnosa	Fleshy jaumea
Lactuca serriola	Bitter lettuce *
Lasthenia coronaria	Royal goldfields
Lasthenia gracilis	Needle goldfields
Leptosyne maritima (CRPR 2B.2)	Sea dahlia +
Logfia filaginoides	California cottonrose
Logfia gallica	Narrow-leaf cottonrose *
Oncosiphon piluliferum	Stinknet *
Osmadenia tenella	Osmadenia
Pluchea odorata var. *odorata*	Salt marsh fleabane
Pseudognaphalium beneolens	Fragrant everlasting
Pseudognaphalium bioletti	Bicolor cudweed
Pseudognaphalium californicum	California everlasting
Pseudognaphalium luteoalbum	Fragrant everlasting cudweed *
Pseudognaphalium stramineum	Cotton-batting plant
Psilocarphus brevissimus	Woolly marbles
Senecio vulgaris	Common groundsel *
Silybum marianum	Milk thistle *
Sonchus asper	Prickly sowthistle *
Sonchus oleraceus	Common sowthistle *
Stephanomeria exigua	Small wreath-plant
Stephanomeria virgata ssp. *pleurocarpa*	Tall wreath-plant
Stylocline gnaphalioides	Everlasting nest-straw
Uropappus lindleyi	Silver puffs
Xanthium strumarium	Cocklebur

BETULACEAE	Birch Family
Alnus rhombifolia	White alder
BIGNONIACEAE	Bignonia Family
Catalpa bignoniodes	Southern catalpa *
BORAGINACEAE	Borage Family
Amsinckia intermedia	Rancher's fiddleneck
Cryptantha clevelandii var. florosa	Coastal cryptantha
Cryptantha intermedia	Common cryptantha
Echium candicans	Pride of Madeira *
Eucrypta chrysanthemifolia var. *chrysanthemifolia*	Common eucrypta
Heliotropium curassavicum	Salt heliotrope
Phacelia cicutaria	Caterpillar phacelia
Phacelia distans	Wild heliotrope
Phacelia ramosissima var. *austrolitoralis* (CRPR 3.2)	South coast branching phacelia +
Plagiobothrys collinus var. *gracilis*	San Diego popcornflower
Pholistoma auritum var. *auritum*	Fiesta flower
BRASSICACEAE	Mustard Family
Brassica nigra	Black mustard *
Erysimum ammophilum (CRPR 1B.2)	Coast wallflower + ^
Hirschfeldia incana	Short-pod mustard *
Lepidium didymum	Lesser wart-cress *
Lepidium draba	Whitetop *
Lepidium latifolium	Broad leaved pepper grass *
Lepidium nitidum	Shining peppergrass
Nasturtium officinale	Watercress
Raphanus sativus	Wild radish *
Sisymbrium irio	London rocket *
Sisymbrium orientale	Hare's ear cabbage *
CACTACEAE	Cactus Family
Cylindropuntia prolifera	Coast cholla
Ferocactus viridescens (CRPR 2B.1)	San Diego barrel cactus + ^
Opuntia ficus-indica	Mission prickly-pear *
Opuntia littoralis	Coast prickly pear
CAMPANULACEAE	Bellflower Family
Triodanis biflora	Venus' looking glass
CAPRIFOLIACEAE	Honeysuckle Family
Lonicera japonica	Japanese honeysuckle *
Lonicera subspicata	Johnston's honeysuckle
CARYOPHYLLACEAE	Pink Family
Cardionema ramosissimum	Sand mat

Silene gallica	Windmill pink *
Silene laciniata ssp. *laciniata*	Southern pink
Spergularia bocconi	Boccone's sand spurrey *
Spergularia villosa	Villous sand-spurrey *
CHENOPODIACEAE	Goosefoot Family
Arthrocnemum subterminale	Glasswort
Atriplex lentiformis	Big saltbush
Atriplex prostrata	Spearscale *
Atriplex semibaccata	Australian saltbush *
Bassia hyssopifolia	Five horn bassia *
Chenopodium album	Lamb's quarters *
Chenopodium berlandieri	Pit-seed goosefoot
Chenopodium californicum	California goosefoot
Chenopodium murale	Nettle-leaf goosefoot *
Dysphania ambrosioides	Mexican tea
Salicornia depressa	Virginia glasswort
Salicornia pacifica	Pacific pickleweed
Salsola tragus	Russian thistle *
Suaeda taxifolia (CRPR 4.2)	Woolly seablite +
CISTACEAE	Rock Rose Family
Cistus incanus	Hairy rockrose *
CLEOMACEAE	Spiderflower Family
Peritoma arborea	Bladderpod
CONVOLVULACEAE	Morning-Glory Family
Calystegia macrostegia ssp. tenuifolia	Narrow-leaf morning-glory
Cuscuta californica	California dodder
Cuscuta salina	Saltmarsh dodder
Cressa truxillensis	Alkali weed
CRASSULACEAE	Stonecrop family
Crassula connata	Pygmyweed
Dudleya edulis	Ladies' fingers
Dudleya lanceolata	Lanceleaf liveforever
Dudleya pulverulenta	Chalk dudleya
CUCURBITACEAE	Gourd Family
Cucurbita foetidissima	Coyote melon
Marah macrocarpus	Wild cucumber
ERICACEAE	Heath Family
Arbutus unedo	Strawberry tree *
EUPHORBIACEAE	Spurge Family
Croton californicus	California croton

Croton setiger	Doveweed
Euphorbia maculata	Spotted spurge *
Euphorbia peplus	Petty spurge *
Ricinus communis	Castor bean *
FABACEAE	Pea Family
Acacia cyclops	Coastal wattle *
Acmispon glaber	Deerweed
Acmispon strigosus	Strigose lotus
Amorpha fruticosa	False indigo
Astragalus trichopodus var. *lonchus*	Ocean locoweed
Lotus corniculatus	Bird's foot trefoil *
Lupinus bicolor	Miniature lupine
Lupinus hirsutissimus	Stinging lupine
Lupinus sparsiflorus	Coulter's lupine
Lupinis succulentus	Arroyo lupine
Lupinus truncatus	Collar lupine
Medicago polymorpha	Bur clover *
Melilotis albus	White sweetclover *
Melilotus indicus	Indian sweetclover
FAGACEAE	Oak Family
Castanea sativa	Sweet chestnut *
Quercus agrifolia	Coast live oak
Quercus dumosa (CRPR 1B.1)	Nuttall's scrub oak +
FRANKENIACEAE	Frankenia Family
Frankenia salina	Alkali-heath
GENTIANACEAE	Gentian Family
Zeltnera venusta	Charming centaury
GERANIACEAE	Geranium Family
Erodium botrys	Long-beaked filaree/storksbill *
Erodium cicutarium	Red-stem filarre/storksbill *
Erodium moschatum	White-stem filaree/storksbill *
Geranium dissectum	Cut-leaf geranium *
GROSSULARIACEAE	Gooseberry Family
Ribes speciosum	Fuchsia-flowered gooseberry
HAMAMELIDACEAE	Witch-Hazel Family
Liquidambar styraciflua	Sweet gum *
JUGLANDACEAE	Walnut Family
Juglans californica (CRPR 4.2)	Southern California black walnut
LAMIACEAE	Mint Family
Marrubium vulgare	Horehound *

Salvia apiana	White sage
Salvia mellifera	Black sage
LYTHRACEAE	Loosestrife Family
Lythrum hyssopifolia	Grass poly *
MALVACEAE	Mallow Family
Malacothamnus fasciculatus	Bush mallow
Malvella leprosa	Alkali mallow
MONTIACEAE	Montia Family
Claytonia parviflora	Miner's lettuce
MORACEAE	Mulberry Family
Ficus carica	Edible fig *
MYRSINACEAE	Myrsine Family
Lysimachia arvensis	Scarlet pimpernel *
MYRTACEAE	Myrtle Family
Callistemon citrinus	Crimson bottlebrush *
Eucalyptus globulus	Blue gum *
Eucalyptus polyanthemos	Silver dollar gum *
NYCTAGINACEAE	**Four O' Clock Family**
Mirabilis laevis var. *crassifolia*	Coastal wishbone plant
OLEACEAE	Olive Family
Fraxinus latifolia	Oregon ash
ONAGRACEAE	Evening-primrose Family
Camissoniopsis bistorta	California sun cup
Camissoniopsis hirtella	Field sun cup
Clarkia epilobioides	Canyon clarkia
Epilobium canum	California fuchsia
Epilobium ciliatum	Slender willow herb
Eulobus californica	California primrose
Oenothera elata ssp. *hookeri*	Hooker's evening-primrose
OROBANCHACEAE	Broom-Rape Family
Castilleja affinis	Coast Indian paintbrush
Castilleja exserta	Owl's clover
Catilleja foliolosa	Woolly Indian paintbrush
Cordylanthus rigidus	Rigid bird's beak
OXALIDACEAE	Oxalis Family
Oxalis pes-caprae	Bermuda-buttercup *
PAEONIACEAE	Peony Family
Paeonia californica	California peony
PAPAVERACEAE	Poppy Family
Dendromecon rigida	Bush poppy

Eschscholzia californica	California poppy
Platystemon californicus	Cream cups
PHRYMACEAE	Lopseed Family
Erythranthe guttata	Yellow monkey flower
Mimulus aurantiacus	Bush monkeyflower
PHYTOLACCACEAE	Pokeweed Family
Phytolacca americana	American pokeweed *
PLANTAGINACEAE	Plantain Family
Antirrhinum coulterianum	Coulter's snapdragon
Antirrhinum nuttallianum ssp. *nuttallianum*	Nuttall's snapdragon
Antirrhinum nuttallianum ssp. *subsessile*	Big-gland Nuttall's snapdragon
Collinsia concolor	Chinese houses
Keckiella cordifolia	Heart leaved penstemon
Plantago erecta	Dot-seed plantain
Plantago lanceolata	English plantain *
Plantago major	Common plantain *
Plantago ovata	Woolly plantain
PLATANACEAE	Sycamore Family
Platanus racemosa	Western sycamore
PLUMBAGINACEAE	Leadwort Family
Limonium californicum	Western marsh-rosemary
POLEMONIACEAE	Phlox Family
Linanthus dianthiflorus	Fringed linanthus
Navarretia hamata	Hooked navarretia
POLYGONACEAE	Buckwheat Family
Eriogonum elongatum var. *elongatum*	Tall buckwheat
Eriogonum fasciculatum	California buckwheat
Lastarriaea coriacea	Leather spineflower
Persicaria amphibia	Water smartweed
Persicaria punctata	Dotted smartweed
Polygonum aviculare	Prostrate knotweed *
Pterostegia drymarioides	Granny's hairnet
Rumex californicus	California dock
Rumex conglomeratus	Clustered dock *
Rumex crispus	Curly dock *
PORTULACACEAE	Purslane Family
Portulaca oleracea	Common purslane *
RANUNCULACEAE	Buttercup Family
Clematis ligusticifolia	Yerba de chiva
Clematis pauciflora	Few flowered clematis

Delphinium cardinale	Scarlet larkspur
Delphinium parryi	Blue larkspur
RESEDACEAE	Mignonette Family
Reseda luteola	Dyer's rocket *
RHAMNACEAE	Buckthorn Family
Ceanothus megacarpus	Big pod ceanothus
Rhamnus crocea	Spiny redberry
Rhamnus ilicifolia	Holly-leaf redberry
ROSACEAE	Rose Family
Cercocarpus betuloides	Mountain mahogany
Heteromeles arbutifolia	Toyon
Pyracantha sp.	Firethorn *
Rubus ursinus	California blackberry
RUBIACEAE	Coffee Family
Galium angustifolium ssp. angustifolium	Narrow-leaf bedstraw
Galium aparine	Common bedstraw
Galium nuttallii	San Diego bedstraw
RUTACEAE	Rue Family
Cneoridium dumosum	Spicebush
SALICACEAE	Willow Family
Salix exigua	Sand bar willow
Salix gooddingii	Goodding's black willow
Salix laevigata	Red willow
Salix lasiolepis	Arroyo willow
SAPINDACEAE	Soapberry Family
Koelreuteria bipinnata	Goldenrain tree *
SCROPHULARIACEAE	Figwort Family
Myoporum acuminatum	Strichnine bush *
Myoporum laetum	Lollypop tree *
Scrophularia californica	California figwort
Verbascum thapsus	Common mullein *
SOLANACEAE	Nightshade Family
Datura wrightii	Western jimson weed
Lycium californicum (CRPR 4.2)	California box thorn +
Nicotiana glauca	Tree tobacco *
Solanum americanum	White nightshade *
Solanum douglasii	Douglas's nightshade
Solanum parishii	Parish's nightshade
TAMARICACEAE	Tamarisk Family
Tamarix ramosissima	Tamarisk *

THEOPHRASTACEAE	Theophrasta Family
Samolus parviflorus	Water pimpernel
TROPAEOLACEAE	Nasturtium Family
Tropaeolum majus	Garden nasturtium *
ULMACEAE	Elm Family
Ulmus parvifolia	Chinese elm *
URTICACEAE	Nettle Family
Urtica dioica ssp. holosericea	Stinging nettle
Urtica urens	Dwarf nettle *
VERBENACEAE	Verbena Family
Verbena lasiostachys var. lasiostachys	Western vervain

MONOCOTS	
AGAVACEAE	Agave Family
Hesperoyucca whipplei	Chaparral yucca
Yucca schidigera	Mohave yucca
ALISMATACEAE	Water Plantain Family
Alisma triviale	Water plantain
AMARYLLIDACEAE	Amaryllis Family
Amaryllis belladonna	Naked lady *
ARECACEAE	Palm Family
Phoenix canariensis	Canary Island date palm *
Washingtonia robusta	Mexican fan palm *
ASPHODELACEAE	Asphodel Family
Asphodelus fistulosus	Hollow-stem asphodel *
COMMELINACEAE	Spiderwort Family
Commelina benghalensis	Dayflower *
CYPERACAEA	Sedge Family
Cyperus eragrostis	Tall flatsedge
Eleocharis macrostachya	Pale spike-rush
Schoenoplectus acutus	Common tule
Schoenoplectus americanus	Alkali bulrush
Schoenoplectus californicus	California bulrush
Bolboschoenus maritimus	Prairie bulrush
IRIDACEAE	Iris Family
Iris pseudacorus	Pale yellow iris *
Sisyrinchium bellum	Blue-eyed-grass
JUNCACEAE	Rush Family
Juncus acutus ssp. *leopoldii* (CRPR 4.2)	Southwestern spiny rush +

Juncus bufonius	Toad rush
Juncus mexicanus	Mexican rush
Juncus xiphioides	Iris-leaf rush
LILIACEAE	Lily Family
Calochortus splendens	Splendid mariposa lily
Calochortus weedii var. weedii	Weed's mariposa lily
MUSACEAE	Banana Family
Musa sp.	Banana *
POACEAE	Grass Family
Agrostris stolonifera	Creeping bentgrass *
Arundo donax	Giant reed *
Avena barbata	Slender wild oat *
Avena fatua	Wild oat *
Brachypodium distachyon	Purple false-brome *
Bromus diandrus	Ripgut grass *
Bromus hordeaceus	Soft chess *
Bromus madritensis ssp. *rubens*	Compact brome *
Cortaderia selloana	Pampas grass *
Cynodon dactylon	Bermuda grass *
Distichlic littoralis	Shore grass
Distichlis spicata	Saltgrass
Elymus condensatus	Giant wild-rye
Elymus ponticus	Tall wheatgrass *
Elymus triticoides	Beardless wild-rye
Ehrharta erecta	Panic veldt grass *
Ehrharta longiflora	Longflowered veldtgrass *
Festuca myuros	Rat tail fescue *
Festuca perennis	Perennial ryegrass *
Hordeum murinum ssp. *glaucum*	Glaucous barley *
Lamarckia aurea	Golden-top *
Melica imperfecta	Little California melica
Muhlenbergia rigens	Deergrass
Pennisetum setaceum	African fountain grass *
Poa annua	Annual ryegrass *
Polypogon monspeliensis	Annual beard grass *
Schismus barbatus	Mediterranean schismus *
Setaria pumila	Yellow bristlegrass
Stipa lepida	Foothill needlegrass
Stipa pulchra	Purple needlegrass
Stipa miliacea	Smilo grass *

Stipa tenuissima	Mexican feather grass *
Festuca myuros	Rattail fescue *
THEMIDACEAE	Brodiaea Family
Bloomeria crocea	Common goldenstar
Dichelostemma capitatum	Blue dicks
TYPHACEAE	Cattail Family
Typha domingensis	Southern cattail
Typha latifolia	Broad-leaf cattail

+ denotes special-status species
* denotes non-native species
^ denotes City of San Diego MSCP covered species

Appendix B: Wildlife Species List

Attachment B. Wildlife Species Observed/Detected Within the Phase 1 Project Site

Order	Family	Scientific Name	Common Name
INVERTEBRATES			
DECAPODA	CAMBARIDAE	*Procambarus clarkia*	Red swamp crayfish *
LEPIDOPTERA	HESPERIIDAE	*Panoquina errans*	Saltmarsh (=wandering) skipper
	LYCAENIDAE	*Hemiargus ceranus*	Ceranus blue
	NYMPHALIDAE	*Adelpha californica*	California sister
		Danaus plexippus	Monarch butterfly
		Nymphalis antiopa	Mourning cloak
		Vanessa atalanta	Red admiral
	PAPILIONIDAE	*Papilio rutulus*	Western tiger swallowtail
		Papilio zelicaon	Anise swallowtail
	PIERIDAE	*Anthocharis sara*	Sara's orangetip
FISH			
ATHERINIFORMES	ATHERINOPSIDAE	*Atherinopsis californiensis*	Jacksmelt
CYPRINODONTIFORMES	POECILIIDAE	*Gambusia affinis*	Mosquitofish *
MUGLIFORMES	MUGLIDAE	*Mugil cephalus*	Striped mullet
PERCIFORMES	CENTRARCHIDAE	*Lepomis cyanellus*	Green sunfish *
		Lepomis macrochirus	Bluegill *
		Micropterus salmoides	Largemouth bass *
AMPHIBIANS			
ANURA	HYLIDAE	*Pseudacris hypochondriaca hypochondriaca*	Baja California treefrog
	RANIDAE	*Lithobates catesbeianus*	American bullfrog *
REPTILES			
SQUAMATA	ANGUIDAE	*Elgaria multicarinata webbii*	Woodland alligator lizard
	PHRYNOSOMATIDAE	*Sceloporus occidentalis*	Western fence lizard
		Uta stansburiana elegans	Western side-blotched lizard
	SCINCIDAE	*Plestiodon skiltonianus interparietalis*	Coronado Island skink
	TEIIDAE	*Aspidoscelis hyperythra*	Orange-throated whiptail
	VIPERIDAE	*Crotalus oreganus helleri*	Southern Pacific rattlesnake
		Crotalus ruber	Red diamond rattlesnake
TESTUDINES	EMYDIDAE	*Trachemys scripta elegans*	Red-eared slider *
BIRDS			
ACCIPITRIFORMES	ACCIPITRIDAE	*Accipiter cooperii*	Cooper's hawk
		Buteo jamaicensis	Red-tailed hawk
		Buteo lineatus	Red-shouldered hawk
		Circus cyaneus	Northern harrier
		Elanus leucurus	White-tailed kite

ANSERIFORMES	ANATIDAE	*Anas cyanoptera*	Cinnamon teal
		Anas platyrhynchos	Mallard
		Branta canadensis	Canada goose
		Bucephala albeola	bufflehead
		Mareca strepera	gadwall
		Mergus serrator	Red-breasted merganser
		Oxyura jamaicensis	Ruddy duck
		Spatula clypeata	Northern shoveler
	PANDIONIDAE	*Pandion haliaetus*	osprey
APODIFORMES	APODIDAE	*Aeronautes saxatalis*	White-throated swift
		Chaetura vauxi	Vaux's swift
	TROCHILIDAE	*Calypte anna*	Anna's hummingbird
		Calypte costae	Costa's hummingbird
		Selasphorus rufus	Rufous hummingbird
		Selasphorus sasin	Allen's hummingbird
CHARADRIIFORMES	CHARADRIIDAE	*Charadrius vociferus*	killdeer
	LARIDAE	*Hydroprogne caspia*	Caspian tern
		Larus californicus	California gull
		Larus occidentalis	Western gull
		Rynchops niger	Black skimmer
		Sterna forsteri	Forester's tern
		Thalasseus elegans	Elegant tern
	RECURVIROSTRIDAE	*Himantopus mexicanus*	Black-necked stilt
	SCOLOPACIDAE	*Numenius phaeopus*	Whimbrel
		Tringa semipalmata	Willet
COLUMBIFORMES	COLUMBIDAE	*Columba livia*	Rock dove *
		Zenaida macroura	Mourning dove
CORACIIFORMES	ALCEDINIDAE	*Mega ceryle*	Belted kingfisher
FALCONIFORMES	FALCONIDAE	*Falco peregrinus anatum*	American peregrine falcon
		Falco sparverius	American kestrel
GALLIFORMES	ODONTOPHORIDAE	*Callipepla californica*	California quail
GRUIFORMES	RALLIDAE	*Fulica americana*	American Coot
		Porzana carolina	Sora
		Rallus limicola	Virginia rail
		Rallus obsoletus levipes	Light-footed Ridgway's rail
PASSERIFORMES	AEGITHALIDAE	*Psaltriparus minimus*	Bushtit
	CARDINALIDAE	*Passerina amoena*	Lazuli bunting
		Passerina caerulea	Blue grosbeak
		Piranga ludoviciana	Western tanager
		Pheucticus melanocephalus	Black-headed grosbeak
	CORVIDAE	*Aphelocoma californica*	Western scrub-jay

		Corvus brachyrhynchos	American crow
		Corvus corax	Common raven
	ESTRILDIDAE	*Lonchura punctulata*	Scaly-breasted munia *
	FRINGILLIDAE	*Haemorhous mexicanus*	House finch
		Spinus psaltria	Lesser goldfinch
	HIRUNDINIDAE	*Hirundo rustica*	Barn swallow
		Petrochelidon pyrrhonota	Cliff swallow
		Stelgidopteryx serripennis	Northern rough-winged swallow
		Tachycineta thalassina	Violet-green swallow
	ICTERIDAE	*Agelaius phoeniceus*	Red-winged blackbird
		Euphagus cyanocephalus	Brewer's blackbird
		Icterus bullockii	Bullock's oriole
		Icterus cucullatus	Hooded oriole
		Molothrus ater	Brown-headed cowbird *
		Quiscalus mexicanus	Great-tailed grackle
		Sturnella neglecta	Western meadowlark
	MIMIDAE	*Mimus polyglottos*	Northern mockingbird
		Toxostoma redivivum	California thrasher
	PARULIDAE	*Cardellina pusilla*	Wilson's warbler
		Geothlypis trichas	Common yellowthroat
		Icteria virens	Yellow-breasted chat
		Oreothlypis celata	Orange-crowned warbler
		Setophaga coronata	Yellow-rumped warbler
		Setophaga nigrescens	Black-throated gray warbler
		Setophaga occidentalis	Hermit warbler
		Setophaga petechia	Yellow warbler
		Setophaga townsendi	Townsend's warbler
	PASSERELIDAE	*Junco hyemalis*	Dark-eyed junco
		Melospiza melodia	Song sparrow
		Melozone crissalis	California towhee
		Passer domesticus	House sparrow *
		Passerculus sandwichensis beldingii	Belding's savannah sparrow
		Pipilo maculatus	Spotted towhee
		Zonotrichia leucophrys	White-crowned sparrow
	POLIOPTILLIDAE	*Polioptila caerulea*	Blue-gray gnatcatcher
		Polioptila californica californica	Coastal California gnatcatcher
	PTILOGONATIDAE	*Phainopepla nitens*	Phainopepla
	STURNIDAE	*Sturnus vulgaris*	European starling *
	SYLVIIDAE	*Chamaea fasciata*	Wrentit

	TROGLODYTIDAE	*Cistothorus palustris clarkae*	Clark's marsh wren
		Cistothorus palustris	Marsh wren
		Thryomanes bewickii	Bewick's wren
		Troglodytes aedon	House wren
	TURDIDAE	*Catharus ustulatus*	Swainson's thrush
	TYRANNIDAE	*Contopus sordidulus*	Western wood pewee
		Empidonax difficilis	Pacific-slope flycatcher
		Empidonax traillii	Willow flycatcher
		Myiarchus cinerascens	Ash-throated flycatcher
		Sayornis nigricans	Black phoebe
		Sayornis saya	Say's phoebe
		Tyrannus vociferans	Cassin's kingbird
	VIREONIDAE	*Vireo bellii pusillus*	Least Bell's vireo
		Vireo gilvus	Warbling vireo
		Vireo huttoni	Hutton's vireo
		Vireo cassinii	Cassin's vireo
PELECANIFORMES	ARDEIDAE	*Ardea alba*	Great egret
		Ardea herodias	Great blue heron
		Botaurus lentiginosus	American bittern
		Butorides virescens	Green heron
		Egretta thula	Snowy egret
		Ixobrychus exilis	Least bittern
		Nycticorax nycticorax	Black-crowned night heron
	PELECANIDAE	*Pelecanus occidentalis californicus*	California brown pelican
		Pelecanus erythrorhynchos	American white pelican
	THRESKIONITHIDAE	*Plegadis chihi*	White-faced ibis
PICIFORMES	PICIDAE	*Colaptes auratus*	Northern flicker
		Dryobates pubescens	Downy woodpecker
		Picoides nuttallii	Nuttall's woodpecker
PODICIPEDIFORMES	PODICIPEDIDAE	*Podilymbus podiceps*	Pied-billed grebe
SULIFORMES	PHALACROCORACIDAE	*Nannopterum auritus*	Double-crested cormorant
MAMMALS			
ARTIODACTYLA	CERVIDAE	*Odocoileus hemionus fuliginatus*	Southern mule deer
CARNIVORA	CANIDAE	*Canis latrans*	Coyote
	FELIDAE	*Lynx rufus*	Bobcat
	PROCYONIDAE	*Procyon lotor*	Raccoon
LAGOMORPHA	LEPORIDAE	*Sylvilagus audubonii*	Audubon's cottontail
RODENTIA	CRICETIDAE	*Neotmoma fuscipes*	Dusky-footed woodrat
	SCIURIDAE	*Otospermophilus beecheyi*	California ground squirrel

*Denotes non-native and/or invasive

Appendix C: Photo Pages

Photo 1: An overview of the coastal sage scrub, chaparral and marsh habitats looking east-southeast from the northwest edge of the Project site.

Photo 2: Representative photo of a coastal sage scrub slope on the western side of the Project site and salt marsh habitat below within the north side of the Project site.

Photo 3: Sea dahlia in coastal sage scrub within the western side of the Project site and southern arroyo willow riparian forest in the background.

Photo 4: A large stand of San Diego marsh-elder in its marshland habitat on the western side of the Project site.

Photo 5: Sessile false goldenaster in its open habitat patch adjacent to the northern portion of the Project site with coastal sage scrub and salt marsh in the background.

Photo 6: Representative photo of Diegan coastal sage scrub at the southwestern side of the Project site along Flintkote Avenue.

Photo 7: Representative photo of disturbed Diegan coastal sage scrub at the southwestern side of the Project site adjacent to Flintkote Avenue with southern arroyo willow riparian forest in the background.

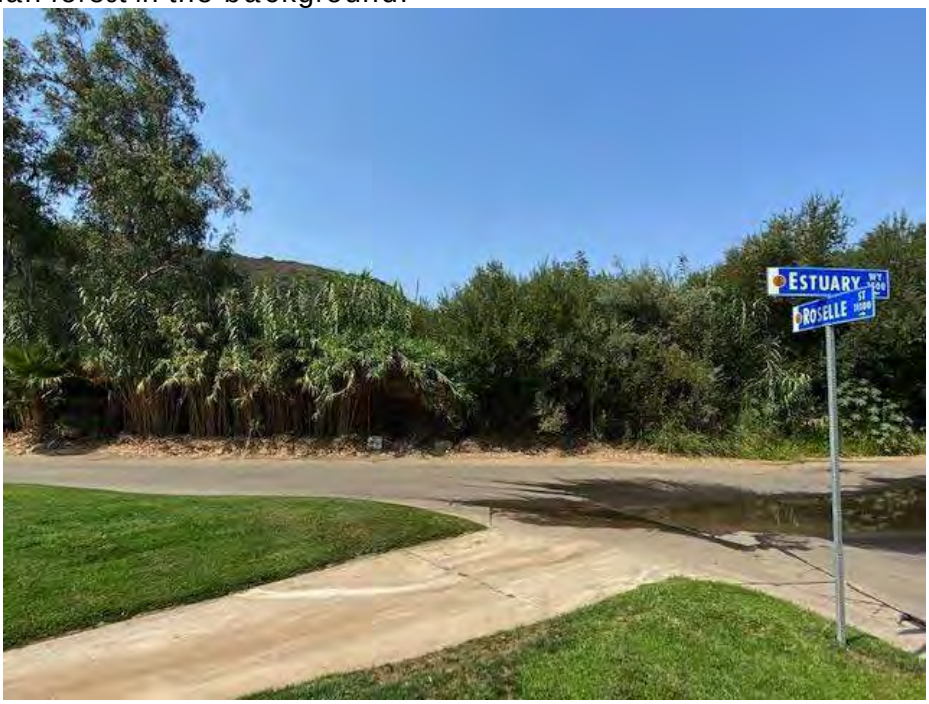


Photo 8: Representative photo of a giant reed stand and adjacent riparian habitat.

Photo 9: Representative photo of the concrete-lined channel that characterizes the southern extent of the Project site.

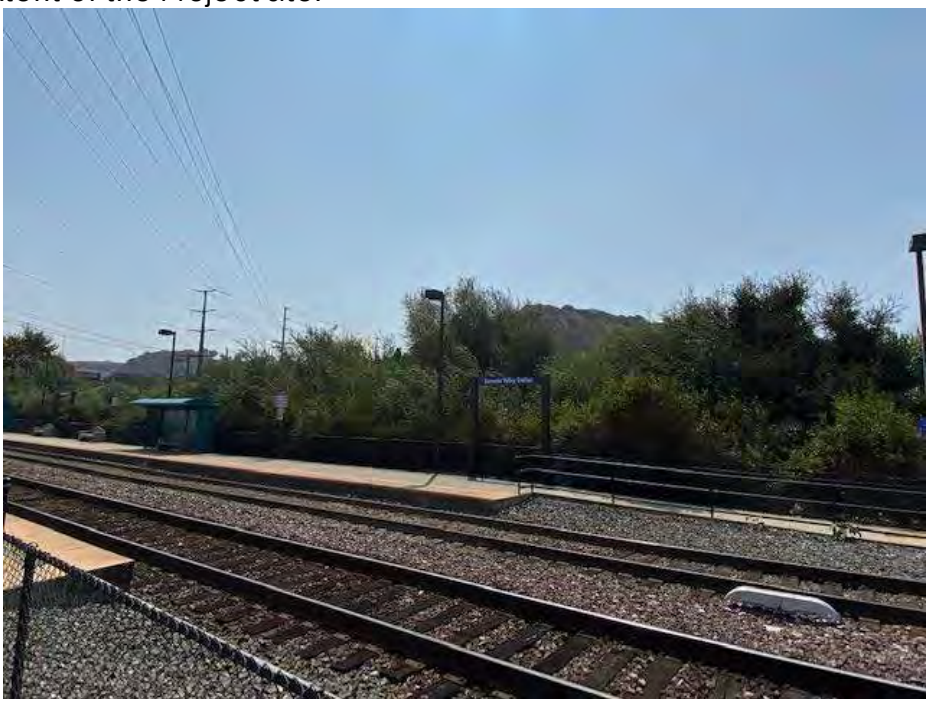


Photo 10: Representative photo of southern arroyo willow riparian forest adjacent to the railroad tracks at the eastern boundary of the Project site.

Photo 11: Representative photo of open water, freshwater marsh and riparian forest habitat at the eastern end of the Project site.

Photo 12: Photo of the proposed outfall area at Carmel Mountain Road with southern willow scrub in the background.

Appendix D: 45-Day Report for Least Bell's Vireo and Southwestern Willow Flycatcher

2022 Least Bell's Vireo & Southwestern Willow Flycatcher Survey Results: Los Peñasquitos Lagoon Restoration Project – Phase 1, San Diego, San Diego County, CA (Blackhawk Environmental, 2022)

BLACKHAWK Environmental

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August 2, 2022

Burns & McDonnell, Inc.
Attn: Mr. David Pohl
4225 Executive Square, Suite 500
La Jolla, CA 92037

2022 Least Bell's Vireo & Southwestern Willow Flycatcher Survey Results:
Los Peñasquitos Lagoon Restoration Project – Phase 1
San Diego, San Diego County, CA

Dear Mr. Pohl:

Blackhawk Environmental Inc. (Blackhawk) was contracted by Burns & McDonnell, Inc. to complete United States Fish & Wildlife Service (USFWS) protocol least Bell's vireo (*Vireo bellii pusillus*; LBVI) and United States Geological Survey (USGS) protocol southwestern willow flycatcher (*Empidonax traillii extimus*; SWFL) surveys for Phase 1 of the proposed Los Peñasquitos Lagoon Restoration Project (Project) located in the City of San Diego and Torrey Pines State Natural Reserve in San Diego County, California (Attachment A, Figure 1) (Sogge, Ahlers and Sferra, 2010, USFWS 2001). The Phase 1 area covers a total of 233.72 acres, while suitable LBVI and SWFL habitat includes approximately 85 acres of that total. LBVI surveys were conducted by Blackhawk Biologists Kris Alberts (USFWS permit TE-039640-5), Ryan Quilley (USFWS permit TE-92462A-2), Seth Reimers (USFWS permit TE-80703A-2) and Hayley Milner, while SWFL surveys were conducted by Mr. Alberts, collectively between April 12, 2022, and July 15, 2022.

The Project site and LBVI/SWFL survey area occurs within United States Geological Survey (USGS) 7.5-minute quadrangle: Del Mar and Del Mar OE W, California. Nearly all the LBVI/SWFL surveys were conducted in one continuous stretch of riparian habitat of Los Peñasquitos Creek within the Project site, with smaller, disjunct patches within the Phase 1 area also surveyed toward the northern end (Figure 2). The LBVI/SWFL survey area included all suitable riparian habitats within the Project site (Figure 4), at elevations from approximately six to 30 feet above mean sea level (amsl.)

This report includes species accounts, survey methods, survey results, discussion, recommendations and conclusion sections. Attachments include Project vicinity, location, and survey results maps (Attachment A), an observed/detected wildlife species list (Attachment B) and a willow flycatcher survey and detection form (Attachment C).

LEAST BELL'S VIREO SPECIES ACCOUNT

The least Bell's vireo is a State and Federal-endangered subspecies of Bell's vireo (*Vireo belli*; BEVI) that breeds along the coastal slope of southern California and winters in southern Baja California, Mexico. Its breeding range extends north to the Sacramento area and south into northern Baja California, Mexico. On its breeding grounds, it typically associates with willow-dominated riparian environments characterized by well-developed canopies of large shrubs and trees, lush green

foliage and dense understories, but may also occur in dense weedy or shrubby habitats adjacent or near riparian habitats, such as those dominated by tall black mustard (*Brassica nigra*), lemonade berry (*Rhus integrifolia*) and/or laurel sumac (*Malosma laurina*). Its preferred breeding habitats are typically southern willow scrub composed of arroyo willow (*Salix lasiolepis*), mulefat (*Baccharis salicifolia*), sandbar willow (*S. exigua*), red willow (*S. laevigata*), Fremont's cottonwood (*Populus fremontii*), and/or Goodding's black willow (*S. goodingii*). A substantial forbaceous understory may also be present that may include stinging nettle (*Urtica dioica*), California blackberry (*Rubus ursinus*), wild grape (*Vitis girdiniana*), poison oak (*Toxicodendron diversilobum*), California wild rose (*Rosa californica*) and/or California mugwort (*Artemisia douglasiana*), among other native and non-native plant species.

Prior to its listing in 1986, LBVI were extirpated from most of their historic range, with an estimated 300 pairs statewide (Kus 2002); all those locations were south of Santa Barbara County, with most occurring along the Santa Margarita River on Marine Corps Base Camp Pendleton in San Diego County. Upon protection and implementation of widespread brown-headed cowbird (*Molothrus ater*; BHCO) control programs, the LBVI population began to exponentially increase, numbering approximately 2,000 pairs by 1998. By 2006, there were 3,000 estimated LBVI territories in California (USFWS 2006). Today, the population is likely marginally above 3,000 estimated territories, but the species is yet to recolonize the northern portion of its former range. Causes of decline included BHCO nest parasitism, habitat loss and degradation, and the spread of invasive plant species such as giant reed (*Arundo donax*) and tamarisk (*Tamarix ramosissima*) into breeding grounds.

LBVI are typically 4.75 to five inches long with a wingspan of about seven inches, weighing less than 0.5 ounce. The general appearance of LBVI includes a grayish/olive back with faint wing bars, faint eye ring, and an unmarked, whitish underside. Its emphatic, persistent and diagnostic male song is a repetitive "question and answer" call type, phonetically written as "chee-cheedle-chee-cheedle-chee-chee? Chee-cheedle-chee-cheedle-chee-chew!" Both the males and females will also scold and call, as well as juveniles.

Breeding locations are of monogamous pairs. Males typically arrive at breeding locations by mid-April, a week or two ahead of the females to begin defending their preferred breeding territory from other LBVI males. The nest is built by both the male and the female, usually within a week or two of pair formation. Nest locations are usually in dense areas of vegetation, and about three to four feet above ground level. The nest form is woven as a suspended cup supported by two twigs on the outer edges. Nest substrates may include a number of native and non-native shrub, forb, vine, and tree species, provided that the selected site has adequate cover and twig structure. Three to five white, sparsely marked eggs are laid in a cup nest made of plant down and fibers; one egg is laid per day. Once a full clutch is laid, the male and female share incubating duties for 14 days until hatching. Once hatched, the young remain in the nest for approximately 10-12 days before fledging while they are fed by both adults. Fledglings then stay with the parents for at least two weeks post-fledging while being fed by both adults. Eventually, the young are driven out of their natal territories by the territorial adults but will remain in the general vicinity until the fall migration.

Egg-laying occurs primarily from late April through early July, followed by nestling presence through August. Most breeding territories will attempt one brood per season; however, double brooding can occur if sufficient time remains in the breeding season. Adults and juveniles remain in and/or near their nesting territories until they begin to migrate south in late summer/early fall to Baja California.

SOUTHWESTERN WILLOW FLYCATCHER SPECIES ACCOUNT

The southwestern willow flycatcher is a state and federally endangered subspecies of willow flycatcher (*Empidonax traillii*; WIFL) that breeds in the southwestern United States and winters in Central America. On its breeding and wintering grounds, it almost invariably associates with dense, riparian environments characterized by multi-tiered canopies, lush green foliage, dense understories, surface water and/or saturated soils, open areas for foraging on a variety of insects, and a mosaic habitat pattern. In migration, it can occur in a variety of habitats, but tends to prefer wooded and/or shrubby riparian habitats where food sources are more abundant (Finch and others, 2000). Successful migration requires high energy intake while foraging in unfamiliar areas, all while exposed to an array of predators and other threats. Therefore, migration is the period of highest mortality within the annual cycle of the flycatcher (Paxton and others, 2007). In 2007, the SWFL population was estimated at approximately 1,300 territories distributed among approximately 280 breeding sites (Durst and others, 2008).

SWFL are safely separated from other WIFL subspecies only by their breeding territory locations, diagnostic "fitz-bew" calls, and timings of detection. They are part of the *Empidonax* complex of flycatchers, notoriously difficult to separate from one another during typical field observations. SWFL are typically 5.75 inches long with a wingspan of eight to nine inches, weighing about 0.5 ounce. The general appearance of SWFL includes a dark olive/brownish-back with two faint whitish wing bars, pale, unmarked, olive/yellowish underside, slightly crested head, whitish throat, yellow lower mandible, faint to absent eye rings, brown eyes and black legs. Songs and calls consist primarily of "fitz-bew"," britt" and "whit" variations.

Most breeding locations are of monogamous pairs; however, polygyny is also not uncommon. Males typically arrive at breeding locations in mid-May, a week or two ahead of the females to begin defending their preferred breeding territory from other SWFL males. The nest is built almost exclusively by the female, usually within a week or two of pair formation. Nest locations are usually in dense areas of vegetation, supported by several smaller twigs in conjunction with larger stems, from two to 20 feet above ground level, though most are placed no more than 10 feet above ground level. Nest substrates may include a number of native and non-native shrub, forb, vine, and tree species, provided that the selected site has adequate cover and twig structure. Two to four buffy eggs, lightly marked with brown toward the blunt end, are laid in a cup nest made of plant down and fibers. Once a full clutch is laid, the female incubates the eggs for 12-13 days. Egg-laying occurs primarily from late May through early July, followed by nestling presence until early August. Nestlings remain in the nest for 12-15 days before fledging and then stay with the parents for approximately two weeks post-fledging while being fed by both adults. Most breeding territories will attempt one brood per season; however, double brooding does occur on occasion if sufficient time remains in the breeding season. Adults and juveniles remain in and/or near their nesting territories until they begin their southward migration in late summer/early fall back to Central America.

SURVEY METHODS

Blackhawk biologists conducted all SWFL/LBVI assessments and surveys for this Project (Table 1). A total of eight LBVI and five SWFL surveys were completed for the Project between April 12 and July 15, 2022.

Least Bell's Vireo Survey Methods

LBVI survey methods followed the latest accepted protocols of the United States Fish & Wildlife Service (USFWS) (January 19, 2001). The LBVI methodology stipulates that eight surveys are to occur between April 10 and July 31 in suitable habitats and should be at least ten days apart. Surveys were conducted without using recorded vocalization playbacks, with the biologist actively looking and listening for LBVI. The biologists were familiar with the songs, calls and scolds of adult and juvenile LBVI, as well as plumage characteristics in relation to other vireo species. Surveys were generally conducted between dawn and 11:00 AM, during favorable weather conditions, and extended past 11:00 AM on some occasions when avian activity remained high. If, where and when LBVI were detected, detailed notation was collected that included: the number of individuals; specific locations using Global Positioning System (GPS) coordinates and/or territory mapping; sex; age; pairing status; nesting status; presence/absence of leg bands and if present, color combinations; the presence of other sensitive bird species; and BHCO presence.

LBVI surveys were conducted by Blackhawk biologists Kris Alberts, Ryan Quilley, Seth Reimers and Hayley Milner during favorable weather conditions in the morning hours of April 12 and 21, May 3 and 16, June 1, 13, and 28, and July 15, 2022. The surveys were done by walking slowly through and/or adjacent to LBVI-suitable habitats, looking and listening for LBVI presence, using binoculars and/or the naked eye, as appropriate. The biologists listened for any and all LBVI calls, as well as all other bird species. All LBVI-relevant data and wildlife species were recorded in the field notes of the biologists for inclusion in this report (Attachment B). Survey conditions are in Table 1.

Southwestern Willow Flycatcher Survey Methods

SWFL survey methods followed the latest accepted protocols of the United States Geological Service (USGS) (Sogge, Ahlers and Sferra, 2010). The SWFL methodology stipulates that for project-related surveys, a minimum of one survey must occur within survey period 1 (May 15-31), a minimum of two surveys must occur within survey period 2 (June 1-24) and a minimum of two surveys must occur within survey period 3 (June 25-July 17); all surveys must be at least five days apart. SWFL surveys were conducted accordingly in the three survey periods (May 16 in survey period 1; June 1 and 13 in survey period 2; June 28 and July 15 in survey period 3) within the 2022 SWFL breeding season.

SWFL surveys were conducted by USFWS-permitted SWFL biologist Kris Alberts during favorable weather conditions in the morning hours of May 16, June 1, 13, and 28, and July 15, 2022. The surveys were done by walking slowly through and adjacent to SWFL-suitable habitats while playing back recorded "fitz-bew" calls on an iPhone 11 with an external speaker. The surveying biologist looked and listened for WIFL and/or SWFL presence throughout the survey durations, using binoculars and/or the naked eye, as appropriate. The biologist listened for any and all WIFL/SWFL calls, as well as all other bird species. All WIFL/SWFL-relevant data and wildlife species were recorded in the field notes of the biologist for inclusion in this report (Attachment B). Survey conditions are presented in Table 1.

Table 1. Survey Conditions

Date	Personnel	Time	Conditions
4/12/22	KA	0620-1120	57-65°, wind 1-5 mph, clouds 40-100% cover, no precipitation
4/21/22	RQ	0610-1100	49-67°, wind 0-8 mph, clouds 0-20% cover, no precipitation
5/3/22	KA	0610-1210	61-64°, wind 0-4 mph, clouds 10-100% cover, no precipitation
5/16/22	KA	0535-1205	61-66°, wind 1-4 mph, clouds 0-100% cover, no precipitation
6/1/22	KA, RQ	0535-1150	63-69°, wind 1-4 mph, clouds 20-100% cover, no precipitation
6/13/22	KA, RQ	0530-1130	64-73°, wind 1-3 mph, clouds 95-100% cover, no precipitation
6/28/22	KA, SR	0530-1040	64-77°, wind 0-3 mph, clouds 0-100% cover, no precipitation
7/15/22	KA, HM	0600-1025	68-73°, wind 1-4 mph, clouds 40-100% cover, no precipitation

Conditions: ° = degrees Fahrenheit. mph = miles per hour.
Observers: KA = Kris Alberts, RQ = Ryan Quilley, SR = Seth Reimers, HM = Hayley Milner

SURVEY RESULTS

One LBVI male use area was mapped; this male LBVI was never observed with a female and remained unpaired during the season. Therefore, no LBVI nesting evidence was observed. Table 2 lists the general GPS center point of the use area. No LBVI were observed with leg bands. No WIFL or SWFL were detected during any of the surveys. The BHCO, a brood parasite of LBVI, SWFL and many other passerines, was detected flying over or perched in the survey area on every survey. Approximately two to six individual BHCO were detected on each survey, primarily utilizing the railroad bridge area at the creek confluence zone near the north side of the trolley parking lot at the east edge of the Phase 1 boundary.

Table 2. Least Bell's Vireo Locations

LBVI Use Area/Location #	GPS Coordinates
Use Area 1	32.906450 -117.228892

The single male LBVI use area occurred within the southeastern portion of the Project boundary adjacent to Los Peñasquitos Creek. This riparian habitat adjacent to Los Peñasquitos Creek is best described as Southern Arroyo Willow Riparian Forest (Holland 1986). In addition, other surveyed habitats included adjacent areas of mule fat scrub and southern willow scrub, as well as peripheral habitats adjacent to riparian habitat types that included large percentages of coyote brush (*Baccharis pilularis*), blue elderberry (*Sambucus nigra* ssp. *caerulea*) and/or laurel sumac (Holland 1986).

The riparian habitat adjacent to Los Peñasquitos Creek where the single male LBVI was most often observed was dominated or co-dominated by arroyo willow, red willow, sandbar willow, and Goodding's black willow. Some western sycamore trees (*Platanus racemosa*) were also dispersed throughout. An understory of invasive perennials and annuals plants was present; this understory

included giant reed, pampas grass (*Cortaderia selloana*), poison oak, castor bean (Ricinus communis) and Bermuda buttercup (*Oxalis pes-caprae*) (Blackhawk 2021).

The LBVI use area included a single unbanded male that was observed on April 21, May 3, June 1, and June 13. The use area was large and indicative of a single male exploring for a potential mate. No definitive evidence of pairing, mating or nesting was found, and no other LBVI was observed anywhere in and/or adjacent to the Project boundary during the surveys conducted in 2022.

I certify this report to be a complete and accurate account of the findings and conclusions of surveys for LBVI and SWFL conducted for the Project during the 2022 breeding season. If you have any questions regarding this report, please feel free to call me at 619-972-8714 or e-mail me at kris@blackhawkenv.com, and I will address all questions and concerns.

Sincerely,

Kris Alberts

Kris Alberts
Principal Biologist
USFWS Permit TE-039640-5

ATTACHMENTS

A: Figures

B: Observed/Detected Wildlife Species List

C: Willow Flycatcher Survey and Detection Form

REFERENCES

Baldwin, B.G. Ed., Goldman, D.H. Ed., Keil, D.J. Ed., Patterson, R. Ed., Rosatti T.J. Ed. 2012. The Jepson Manual: Vascular Plants of California, Second Edition, Thoroughly Revised and Expanded. University of California Press. 1,600 pp.

Blackhawk Environmental. 2021. Biological Technical Report, Los Peñasquitos Lagoon Restoration – Phase 1. August 27.

California Department of Fish and Game (CDFG/CDFW). 2011 (Jan). Special Animals. State of California Resources Agency, Sacramento, California.

California Department of Fish and Game (CDFG/CDFW). 2013 (Jan). State and Federally Listed Endangered and Threatened Animals of California. State of California Resources Agency. Sacramento, California.

Durst, S.L., Theimer, T.C., Paxton, E.H., and Sogge, M.K., 2008. Age, habitat, and yearly variation in the diet of a generalist insectivore, the Southwestern Willow Flycatcher: Condor, v. 110, p. 514-525.

Finch, D.M., Kelly, J.F., and Cartron, J.E., 2000. Chapter 7: Migration and Winter Ecology, *in* Finch, D.M., and Stoleson, S.H., eds., Status, ecology, and conservation of the Southwestern Willow Flycatcher: U.S. Forest Service Rocky Mountain Research Station General Technical Report-60, p. 71-82.

Holland, R. 1986. Preliminary descriptions of the terrestrial natural communities of California. Unpublished document, California Department of Fish and Game, Natural Heritage Division. Sacramento, CA.

Kus, Barbara. 2002. Least Bell's Vireo (Vireo bellii pusillus). In the Riparian Bird Conservation Plan; a strategy for reversing the decline of riparian-associated birds in California. California Partners in Flight. PRBO Conservation Science.

Paxton, E.H., Sogge, M.K., Durst, S.L., Theimer, T.C., and Hatten, J.R., 2007. The ecology of the Southwestern Willow Flycatcher in central Arizona—a 10-year synthesis report: U.S. Geological Survey Open-File Report 2007-1381, 143 p.

Sogge, M.K., Ahlers, Darrell, and Sferra, S.J., 2010. A Natural History Summary and Survey Protocol for the Southwestern Willow Flycatcher: U.S. Geological Survey Techniques and Methods 2A-10, 38 p.

US Fish & Wildlife Service. 2001. Least Bell's Vireo Survey Guidelines. January 19, 2001.

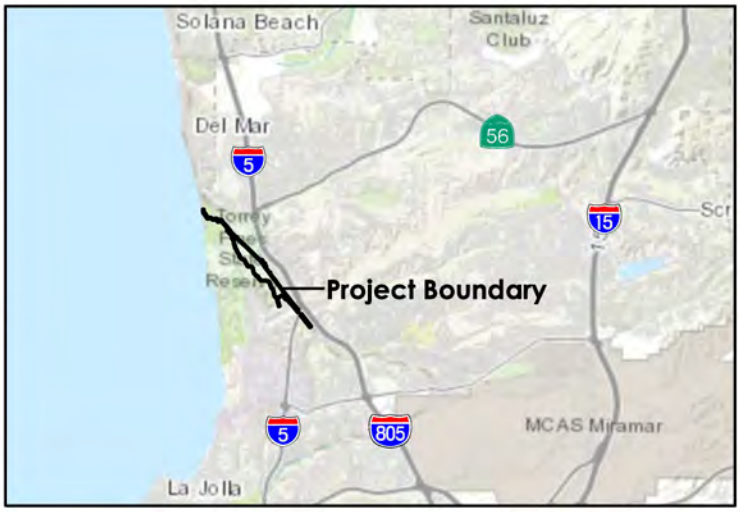
US Fish & Wildlife Service. 2006. Least Bell's Vireo (Vireo bellii pusillus) 5-Year Review Summary and Evaluation. US Fish & Wildlife Service Carlsbad Fish & Wildlife Office. Carlsbad, CA.

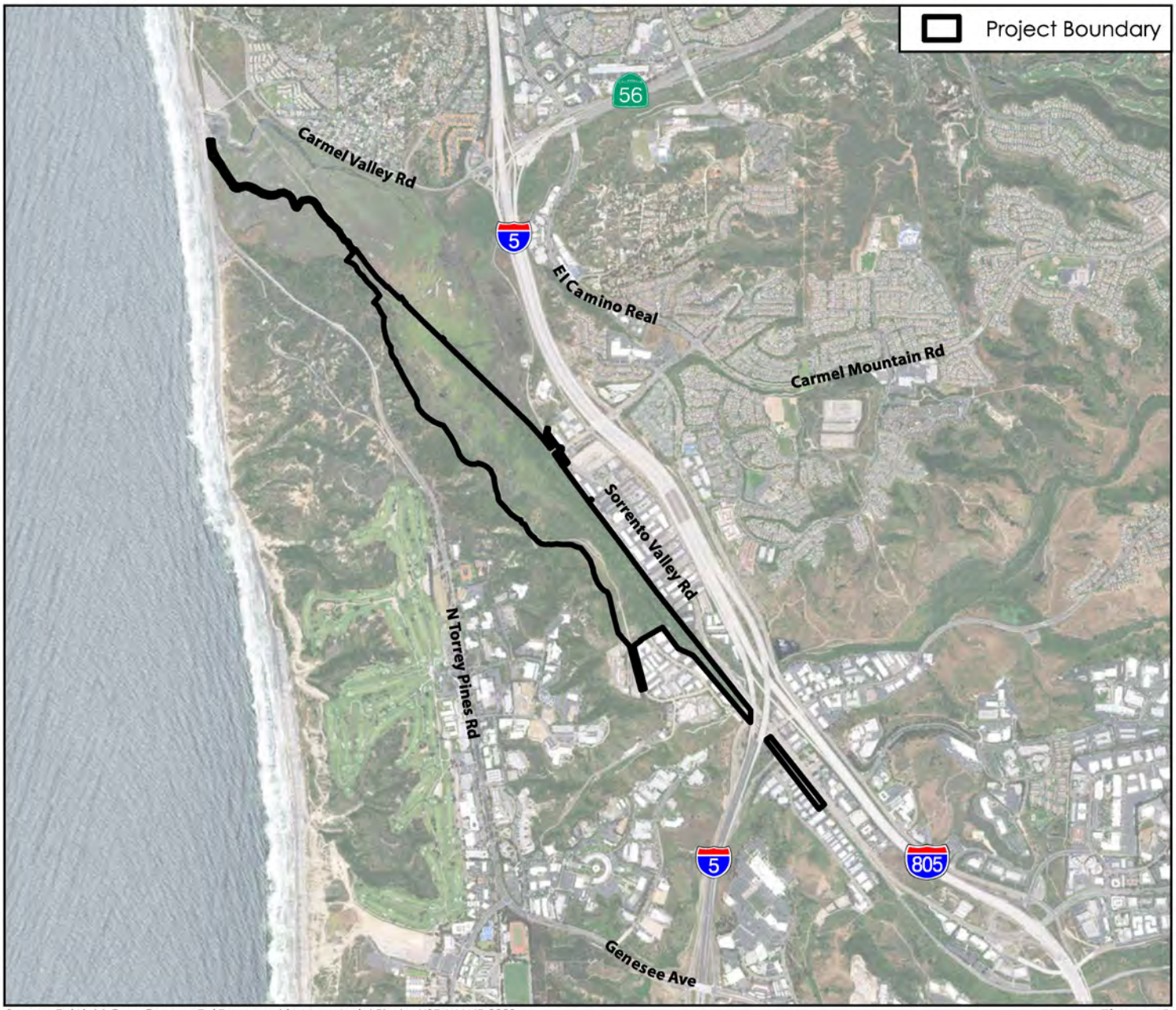
US Geological Service. 2011. 7.5-minute topographic quadrangle map for Del Mar and Del Mar OE W, California.

ATTACHMENT A

Figures

Blackhawk Environmental





Source: Esri Light Gray Canvas, Esri Topographic Map; Aerial Photo: USDA NAIP 2020

Figure 1

Project Vicinity and Location

Los Peñasquitos Design Phase 1

BLACKHAWK Environmental

N

0 3,000 Feet

Aerial Photo: USDA NAIP 2020

Figure 2

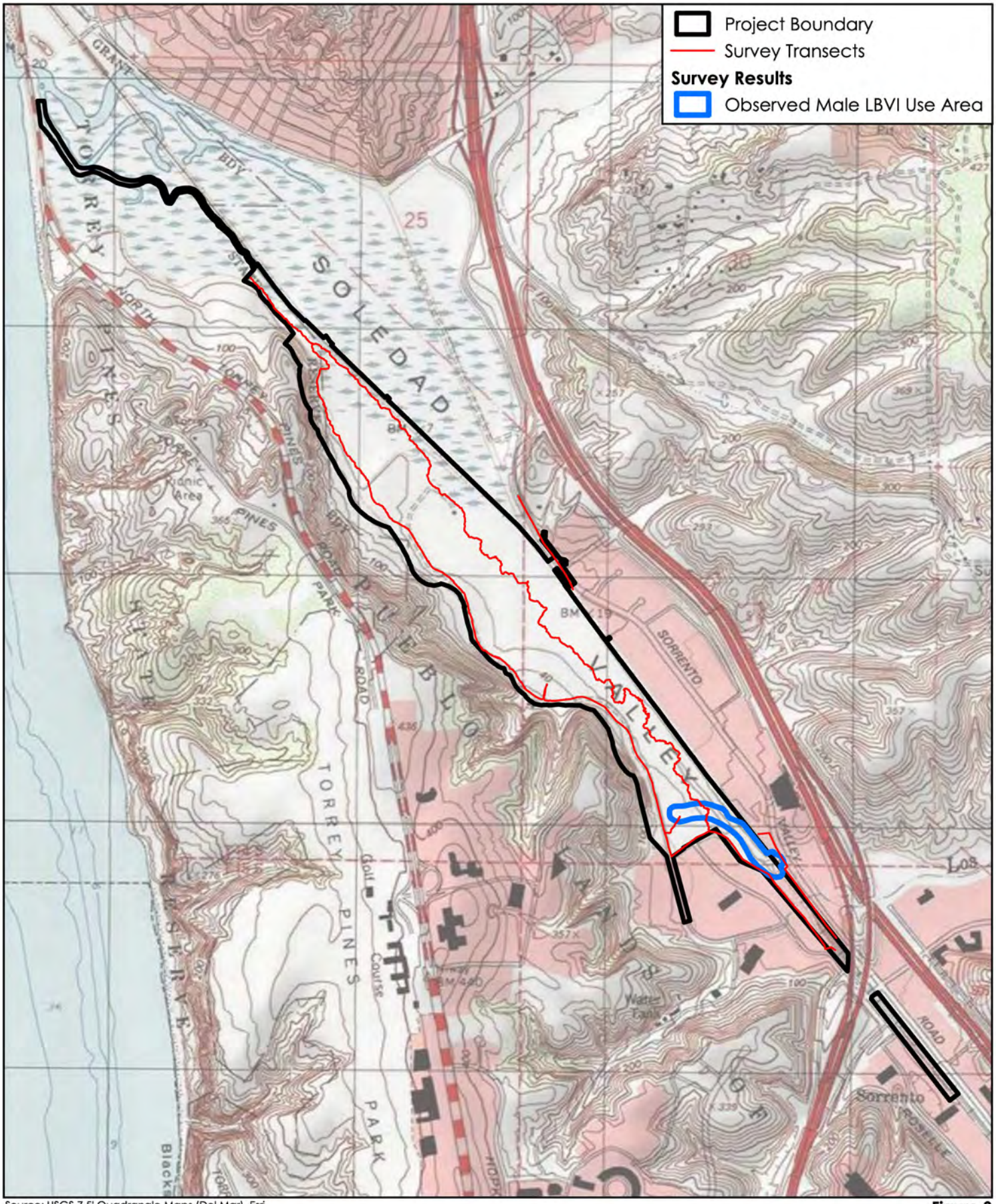
Survey Results - Aerial Photo

Los Peñasquitos Design Phase 1

BLACKHAWK Environmental

N

0 1,700 Feet



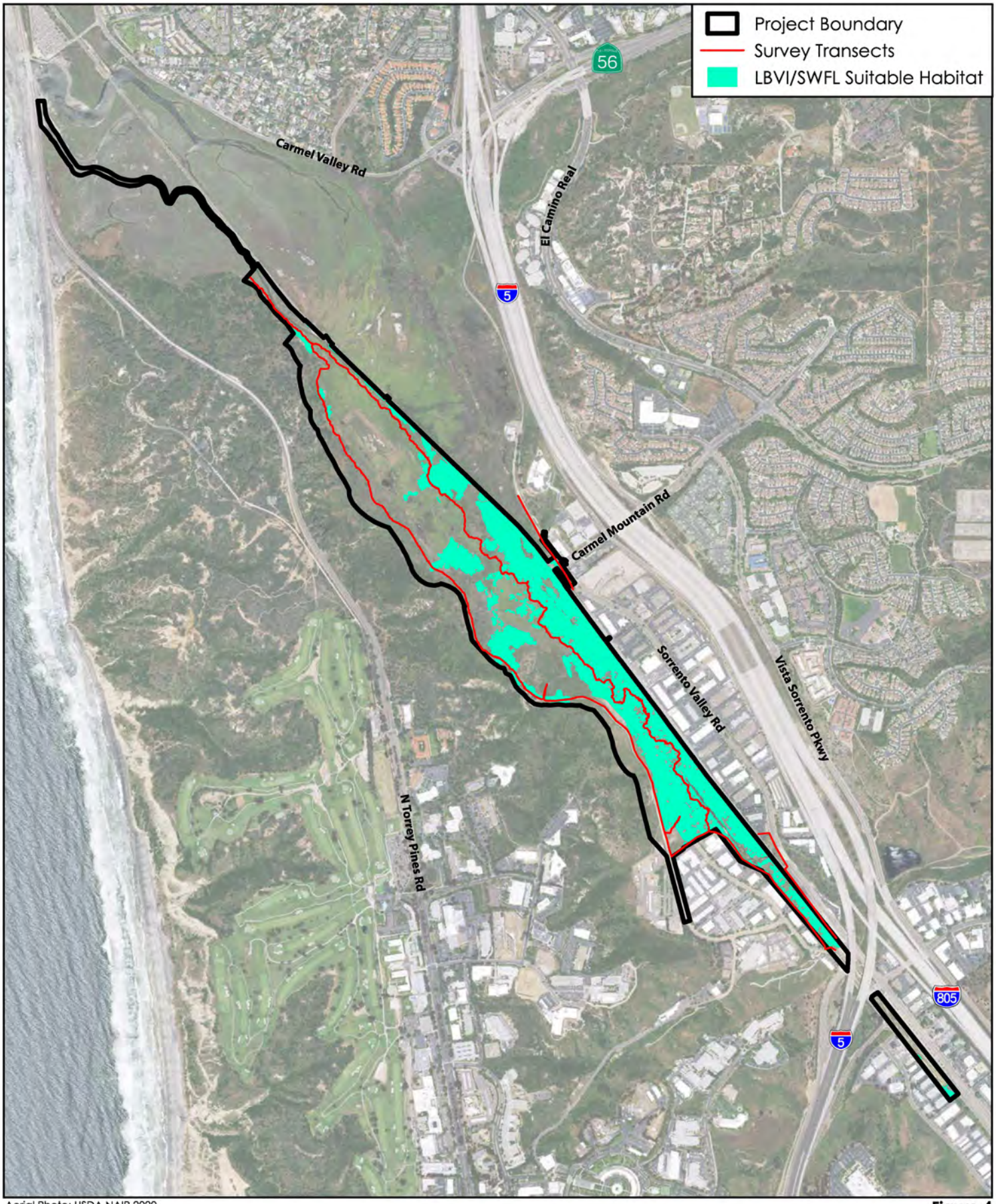
Source: USGS 7.5' Quadrangle Maps (Del Mar), Esri

Figure 3

Survey Results - USGS Topo

Los Peñasquitos Design Phase 1

BLACKHAWK Environmental



Aerial Photo: USDA NAIP 2020

Figure 4

LBVI/SWFL Suitable Habitat

Los Peñasquitos Design Phase 1

BLACKHAWK Environmental

N

0 1,700 Feet

ATTACHMENT B

Observed/Detected Wildlife Species List

Los Peñasquitos Lagoon Restoration Design Phase I Project

2022 Least Bell's Vireo & Southwestern Willow Flycatcher Survey

Observed/Detected Wildlife Species List

AVES	BIRDS
ACCIPITRIDAE	**Hawks & eagles**
Buteo jamaicensis	red-tailed hawk
Buteo lineatus	red-shouldered hawk
Elanus leucurus	white-tailed kite
AEGITHALIDAE	**Long-tailed tits**
Psaltriparus minimus	bushtit
ANATIDAE	**Ducks, Geese & Swans**
Anas platyrhynchos	mallard
Mareca strepera	gadwall
Spatula clypeata	northern shoveler
ARDEIDAE	**Herons, Egrets, Bitterns**
Ardea alba	great egret
Ardea herodias	great blue heron
Butorides virescens	green heron
Egretta thula	snowy egret
APODIDAE	**Swifts**
Aeronautes saxatalis	white-throated swift
Chaetura vauxi	Vaux's swift
CARDINALIDAE	**Cardinals & allies**
Passerina amoena	lazuli bunting
Passerina caerulea	blue grosbeak
Pheucticus melanocephalus	black-headed grosbeak
CHARADRIIDAE	**Plovers, Dotterels & Lapwings**
Charadrius vociferans	killdeer
COLUMBIDAE	**Pigeons & doves**
Zenaida macroura	mourning dove
CORVIDAE	**Crows & jays**
Aphelocoma californica	California scrub jay
Corvus brachyrhynchos	American crow
Corvus corax	common raven
ESTRILDIDEA	**Estrildid Finches**
**Lonchura punctulate*	scaly-breasted munia
FALCONIDAE	**Falcons**
Falco peregrinus	peregrine falcon
Falco sparverius	American kestrel
HIRUNDINIDAE	**Swallows**
Petrochelidon pyrrhonota	cliff swallow
Stelgidopteryx serripennis	northern rough-winged swallow
Tachycineta thalassina	violet-green swallow
FRINGILLIDAE	**Finches & allies**
Haemorhous mexicanus	house finch

Spinus psaltria	lesser goldfinch
ICTERIDAE	**New World blackbirds, orioles & allies**
Euphagus cyanocephalus	Brewer's blackbird
Agelaius phoeniceus	red-winged blackbird
Icterus cucullatus	hooded oriole
Molothrus ater	brown-headed cowbird
LARIDAE	**Gulls, terns & skimmers**
Larus occidentalis	western gull
MIMIDAE	**Mockingbirds & thrashers**
Mimus polyglottos	northern mockingbird
Toxostoma redivivum	California thrasher
ODONTOPHORIDAE	**New World quails**
Callipepla californica	California quail
PARULIDAE	**Wood warblers & relatives**
Cardellina pusilla	Wilson's warbler
Geothlypis trichas	common yellowthroat
Icteria virens	yellow-breasted chat
Oreothlypis celata	orange-crowned warbler
Setophaga coronata	yellow-rumped warbler
Setophaga nigrescens	black-throated gray warbler
Setophaga petechia	yellow warbler
PASSERELLIDAE	**New World Sparrows and Towhees**
Junco hyemalis	dark-eyed junco
Melospiza melodia	song sparrow
Melozone crissalis	California towhee
Passerculus sandwishensis beldingi	Belding's savannah sparrow
Pipilo maculatus	spotted towhee
Zonotrichia leucophrys	white-crowned sparrow
PHALACROCORACIDAE	**Cormorants**
Phalacrocorax auratus	double-crested cormorant
PICIDAE	**Woodpeckers & allies**
Dryobates pubescens	downy woodpecker
Picoides nuttallii	Nuttall's woodpecker
PODICIPEDIDAE	**Grebes**
Podilymbus podiceps	pied-billed grebe
POLIOPTILIDAE	**Gnatcatchers**
Polioptila caerulea	blue-gray gnatcatcher
Polioptila californica californica	coastal California gnatcatcher
PTILIOGONATIDAE	**Silky flycatchers**
Phainopepla nitens	phainopepla
RALLIDAE	**Rails & allies**
Fulica americana	American coot
Rallus limicola	Virginia rail
Rallus obsoletus levipes	light-footed Ridgway's rail
STURNIDAE	**Starlings & allies**
* *Sturnus vulgaris*	European starling
SYLVIIDAE	**True warblers & parrotbills**
Chamaea fasciata	wrentit

TROCHILIDAE	**Hummingbirds**
Calypte anna	Anna's hummingbird
Selasphorus sasin	Allen's hummingbird
TROGLODYTIDAE	**Wrens**
Cistothorus palustris	marsh wren
Thryomanes bewickii	Bewick's wren
Troglodytes aedon	house wren
TURDIDAE	**Thrushes & allies**
Catharus ustulatus	Swainson's thrush
TYRANNIDAE	**Tyrant flycatchers**
Contopus sordidulis	western wood-peewee
Empidonax difficilis	Pacific-slope flycatcher
Myiarchus cinerascens	ash-throated flycatcher
Sayornis nigricans	black phoebe
Sayornis saya	Say's phoebe
Tyrannus vociferans	Cassin's kingbird
VIREONIDAE	**Vireos**
Vireo bellii pusillus	least Bell's vireo
Vireo cassinii	Cassin's vireo
Vireo gilvus	warbling vireo
Vireo huttoni	Hutton's Vireo

AMPHIBIA	**AMPHIBIANS**
RANIDAE	**True frogs**
* *Lithobates catesbeianus*	bullfrog

REPTILIA	**REPTILES**
PHRYNOSOMATIDAE	**Zebra-tailed, earless, fringe-toed, spiny, tree, side-blotched & horned lizards**
Sceloporus occidentalis longipes	Great Basin fence lizard
EMYDIDAE	**New world pond turtles**
* *Trachemys scripta*	red-eared slider
TEIIDAE	**Whiptails & racerunners**
Aspidoscelis hyperythra beldingi	Belding's orange-throated whiptail

MAMMALIA	**MAMMALS**
CANIDAE	**Foxes, wolves & allies**
Canis latrans	coyote
CERVIDAE	**Deer, elk & allies**
Odocoileus hemionus	mule deer
FELIDAE	**Cats**
Lynx rufus	bobcat
LEPORIDAE	**Rabbits & hares**
Sylvilagus audobonii	desert cottontail
PROCYONIDAE	**Raccoons & allies**
Procyon lotor	raccoon

* *Non-native species*

ATTACHMENT C

Willow Flycatcher Survey and Detection Form

Appendix 1. Willow Flycatcher Survey and Detection Form

Always check the U.S. Fish and Wildlife Service Arizona Ecological Services Field Office web site (http://www.fws.gov/southwest/es/arizona/) for the most up-to-date version.

Willow Flycatcher (WIFL) Survey and Detection Form (revised April 2010)

Site Name Los Penasquitos Lagoon Restoration Design Phase I State CA County San Diego
USGS Quad Name Del Mar and Del Mar OE W Elevation 2 to 10 (meters)
Creek, River, Wetland, or Lake Name Los Penasquitos Lagoon
Is copy of USGS map marked with survey area and WIFL sightings attached (as required)? *Yes* X *No* ___

Survey Coordinates: Start: E 478923 N 3640509 UTM Datum NAD83 (See instructions)
Stop: E 476567 N 3643224 UTM Zone 11S
If survey coordinates changed between visits, enter coordinates for each survey in comments section on back of this page.

***** Fill in additional site information on back of this page *****

Survey # / Observer(s) (Full Name)	Date (m/d/y) Survey time	Number of Adult WIFLs	Estimated Number of Pairs	Estimated Number of Territories	Nest(s) Found? Y or N / If Yes, number of nests	Comments (e.g., bird behavior; evidence of pairs or breeding; potential threats [livestock, cowbirds, *Diorhabda* spp.]). If *Diorhabda* found, contact USFWS and State WIFL coordinator	GPS Coordinates for WIFL Detections (this is an optional column for documenting individuals, pairs, or groups of birds found on each survey). Include additional sheets if necessary.			
							# Birds	Sex	UTM E	UTM N
Survey # 1 Observer(s) Kris Alberts	Date 5-16-22 Start 0535 Stop 1205 Total hrs 6.5	0	0	0	N	Cowbirds detected				
Survey # 2 Observer(s) Kris Alberts	Date 6-1-22 Start 0535 Stop 1150 Total hrs 6.25	0	0	0	N	Cowbirds detected				
Survey # 3 Observer(s) Kris Alberts	Date 6-13-22 Start 0530 Stop 1130 Total hrs 6.0	0	0	0	N	Cowbirds detected				
Survey # 4 Observer(s) Kris Alberts	Date 6-28-22 Start 0530 Stop 1040 Total hrs 5.25	0	0	0	N	Cowbirds detected				
Survey # 5 Observer(s) Kris Alberts	Date 7-15-22 Start 0600 Stop 1025 Total hrs 4.5	0	0	0	N	Cowbirds detected				

Overall Site Summary Totals do not equal the sum of each column. Include only resident adults. Do not include migrants, nestlings, and fledglings. Be careful not to double count individuals. Total Survey Hrs 28.5	Total Adult Residents	Total Pairs	Total Territories	Total Nests	Were any Willow Flycatchers color-banded? Yes___ No ___ If yes, report color combination(s) in the comments section on back of form and report to USFWS.
	0	0	0	0	

Reporting Individual Kris Alberts Date Report Completed August 2, 2022
US Fish and Wildlife Service Permit # TE039640-5 State Wildlife Agency Permit # SC-192940005

Submit form to USFWS and State Wildlife Agency by September 1st. Retain a copy for your records.

Fill in the following information completely. Submit form by September 1st. Retain a copy for your records.

Reporting Individual Kris Alberts Phone # 619-972-8714
Affiliation Blackhawk Environmental, Inc. E-mail kris@blackhawkenv.com
Site Name Los Penasquitos Lagoon Date Report Completed August 2, 2022
Was this site surveyed in a previous year? Yes X No ___ Unknown ____
Did you verify that this site name is consistent with that used in previous years? Yes X No _____ Not Applicable ___
If site name is different, what name(s) was used in the past?_____
If site was surveyed last year, did you survey the same general area this year? Yes ____ No ____ If no, summarize below.
Did you survey the same general area during each visit to this site this year? Yes X No ____ If no, summarize below.

Management Authority for Survey Area: Federal____ Municipal/County X State X Tribal ____ Private X
Name of Management Entity or Owner (e.g., Tonto National Forest) City of San Diego, California State Parks, Coastal Conservancy

Length of area surveyed: 3.6 (km)

Vegetation Characteristics: Check (only one) category that best describes the predominant tree/shrub foliar layer at this site:

_____ Native broadleaf plants (entirely or almost entirely, > 90% native)

X Mixed native and exotic plants (mostly native, 50 - 90% native)

_____ Mixed native and exotic plants (mostly exotic, 50 - 90% exotic)

_____ Exotic/introduced plants (entirely or almost entirely, > 90% exotic)

Identify the 2-3 predominant tree/shrub species in order of dominance. Use scientific names.
Salix lasiolepis, Salix gooddingii, Baccharis sallicifolia

Average height of canopy (Do not include a range): 6 (meters)

Attach the following: 1) copy of USGS quad/topographical map (REQUIRED) of survey area, outlining survey site and location of WIFL detections; 2) sketch or aerial photo showing site location, patch shape, survey route, location of any detected WIFLs or their nests; 3) photos of the interior of the patch, exterior of the patch, and overall site. Describe any unique habitat features in Comments.

Comments (such as start and end coordinates of survey area if changed among surveys, supplemental visits to sites, unique habitat features. Attach additional sheets if necessary.

Territory Summary Table. Provide the following information for each verified territory at your site.

Territory Number	All Dates Detected	UTM E	UTM N	Pair Confirmed? Y or N	Nest Found? Y or N	Description of How You Confirmed Territory and Breeding Status (e.g., vocalization type, pair interactions, nesting attempts, behavior)

Attach additional sheets if necessary

Appendix E: 45-Day Report for Light-footed Ridgway's Rail and Belding's Savannah Sparrow

Survey Results for Light-footed Ridgway's Rail and Belding's Savannah Sparrow Los Peñasquitos Lagoon Restoration Phase 1 Project in the City of San Diego, San Diego County, California
(Blackhawk Environmental, 2022)

BLACKHAWK Environmental

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August 30, 2022

Ms. Stacey Love
Recovery Permit Coordinator
U.S. Fish and Wildlife Service – Carlsbad Fish and Wildlife Office
2177 Salk Ave, Suite 250
Carlsbad, CA 92008
Email: stacey_love@fws.gov
Office: (760) 431-9440 x 263

Survey Results for Light-footed Ridgway's Rail and Belding's Savannah Sparrow Los Peñasquitos Lagoon Restoration Phase 1 Project in the City of San Diego, San Diego County, California

Dear Ms. Love:

Blackhawk Environmental Inc. (Blackhawk) was contracted through Burns & McDonnell Engineering to complete presence or absence surveys for light-footed Ridgway's rail (*Rallus obsoletus levipes*; LFRR) and Belding's savannah sparrow (*Passerculus sandwichensis beldingi*; BSSP) as part of the Los Peñasquitos Lagoon Restoration Phase 1 Project in Los Peñasquitos Lagoon in the City of San Diego, San Diego County, California (Figure 1). This report documents the results of the 2022 survey season for LFRR and BSSP at the site.

The Project is located north and east of North Torrey Pines Road, north of Flintkote Avenue and Roselle Street and south of North County Transit District (NCTD) rail line (Figure 2). The Los Peñasquitos site is part of the Torrey Pines State Natural Reserve and is designated a Natural Preserve. The lagoon system is characterized by mudflats with meandering open water channels and shallow open water ponds surrounded by coastal marsh, upland scrub, riparian forest, and open non-native grasslands (Figure 3). Marsh habitats include coastal salt marsh that supports large tracks of salt marsh pickleweed (*Salicornia pacifica*), estuary seablite (*Suaeda esteroa*), intermittent stands of alkali-heath (*Frankenia salina*) and marsh jaumea (*Jaumea carnosa*). The coastal and brackish marsh and coastal and valley freshwater marsh habitats are dominated by similar plant species including rushes (*Juncus* spp.), bulrushes (*Schoenoplectus* spp.), and cattail (*Typha sp.*). Upland scrub area consists of coastal sage scrub supporting California sagebrush (*Artemisia californica*), buckwheat (*Eriogonum fasciculatum* ssp.), and white sage (*Salvia apiana*). On-site riparian woodland is characterized by mature stands of arroyo willow (Salix laseolepis), California Sycamore (*Plantanus racemose*) and cottonwood (*Populus fremontii*). Elevation of the Los Peñasquitos site is approximately ten feet (3 meters) above mean sea level.


Survey Area
SOLEDAD
VALLEY
TORREY PINES
PARK
Lending Strip
Carmel
Source: USGS 7.5' Quadrangle Maps (Del Mar), Esri
Figure 1-2
Project Vicinity Map
Los Peñasquitos Design Phase 1
0
2,000
Feet

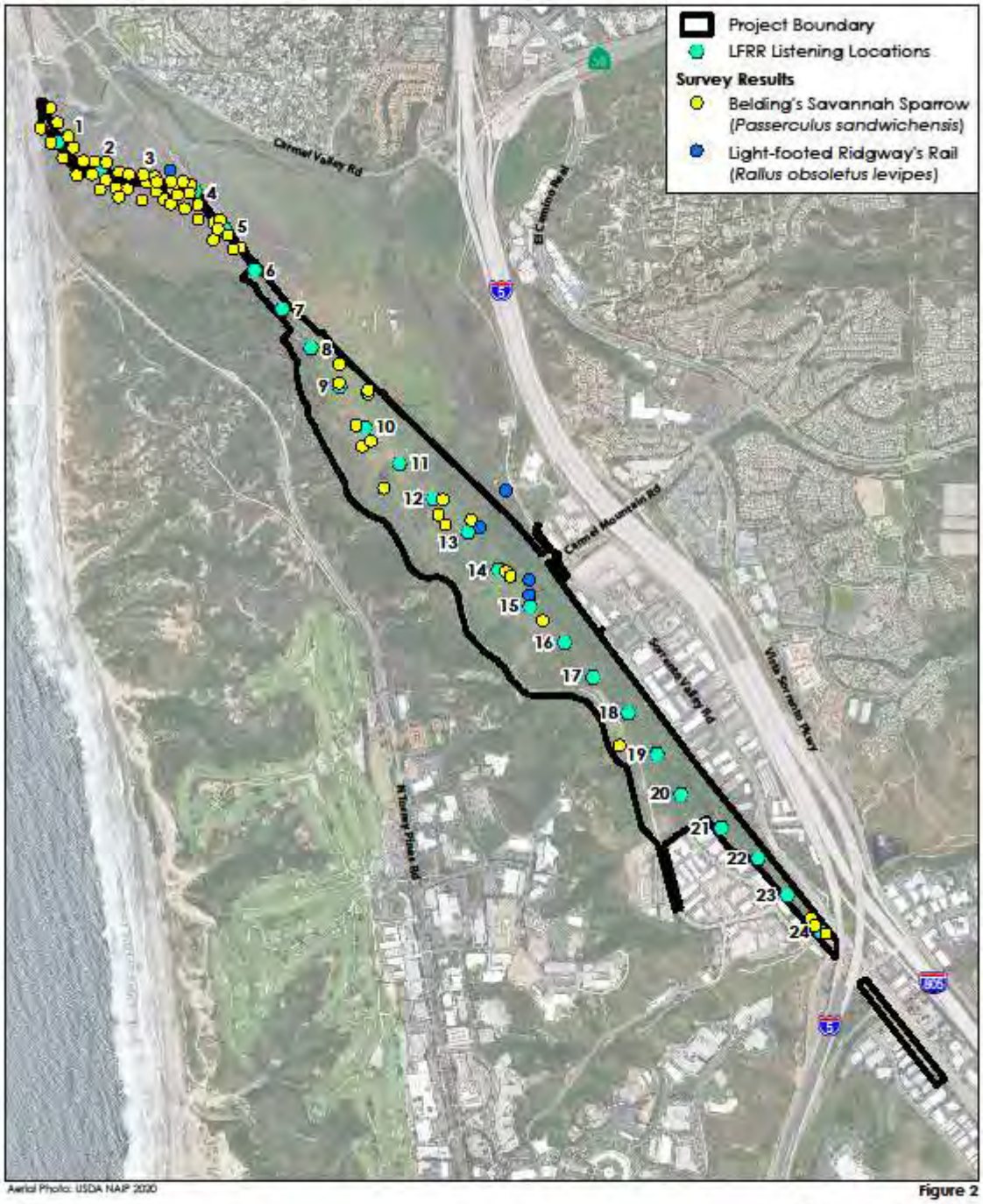


Figure 2

Survey Results

Los Peñasquitos Design Phase 1

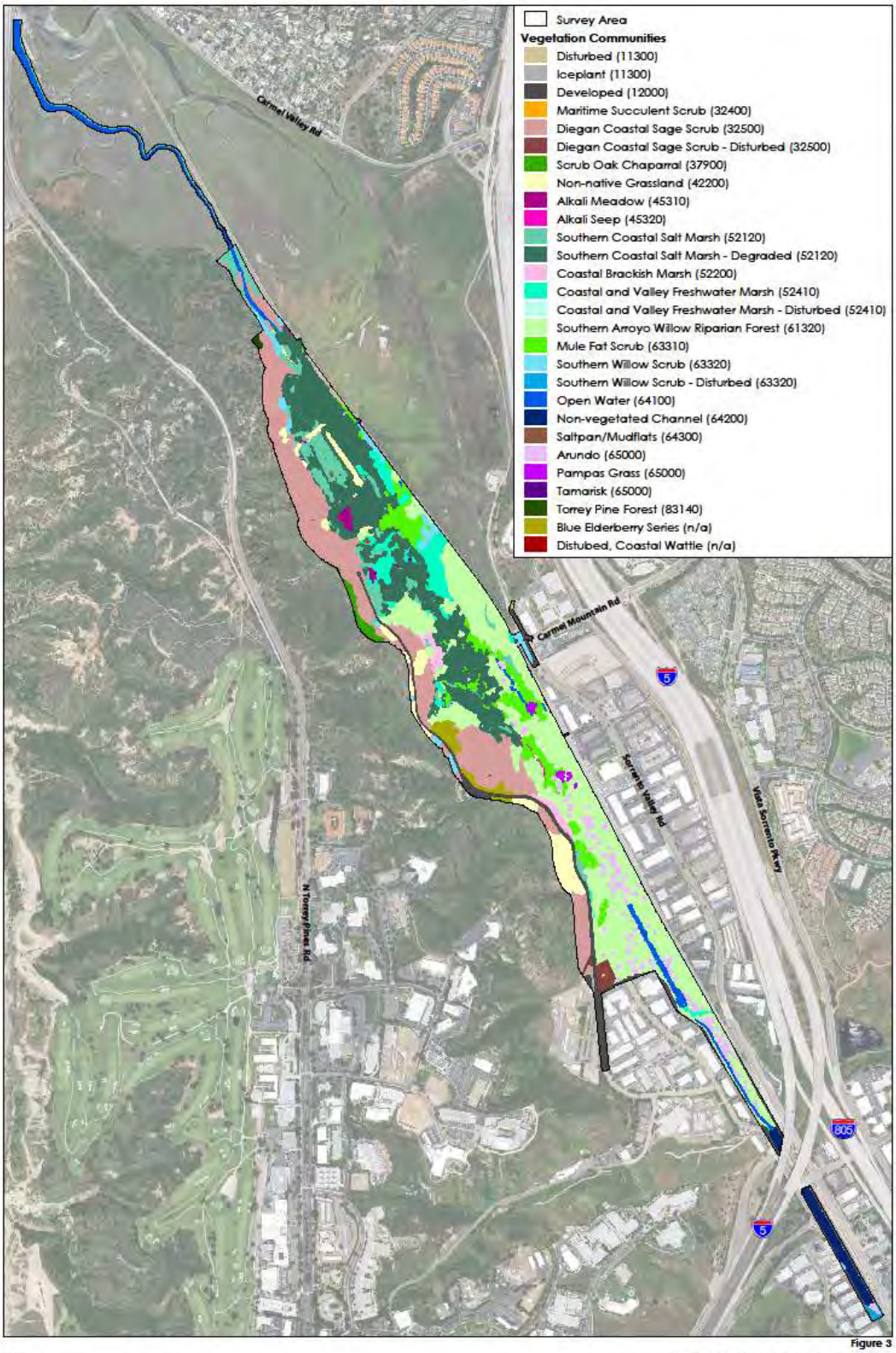


Figure 3

Vegetation Communities

Los Peñasquitos Design Phase 1

LIGHT-FOOTED RIDGEWAY'S RAIL SPECIES ACCOUNT

The light-footed Ridgway's rail (formerly Clapper rail) is a sedentary marsh bird that can be found year-round in the coastal marshes of southern California and northern Baja, Mexico (Grinnell and Miller 1944). This subspecies was listed as endangered in October 1970 by the USFWS and endangered and fully protected in 1971 by CDFW. The listings were prompted by a large decline in population which was attributed, exclusively, to habitat loss and degradation.

Historically, the LFRR nests in salt marsh habitat and exclusively in cordgrass. The rails build their nests attached to the cordgrass, enabling the nests to rise and lower with the tides (Massey et. al. 1984). The Ridgway's rail is an opportunistic forager that eats primarily invertebrates such as beetles, snails, crayfish, decapods, and isopods (USFWS 1985). Nesting starts in mid-March and extends into August. Both parents share in the incubation and rearing of the chicks.

In recent years, with the loss of habitat and habitat quality, the rail has taken advantage of freshwater marsh in some areas. Increased detections of rails at inland sites include creeks, rivers, and lake edges that support reeds, mostly cattails and bulrushes and is dense enough to protect the rail from predation and human activity. The dense reeds can be used to anchor their nests in much the same manner as they do with cordgrass. In some areas, such as the San Dieguito River, San Diego River, Otay River and Los Peñasquitos Creek, the rail has moved upriver and is nesting entirely in freshwater marsh habitat (Zembal 2019).

BELDING'S SAVANNAH SPARROW SPECIES ACCOUNT

The Belding's savannah sparrow is a non-migratory bird that occurs in coastal salt marshes. This small songbird has been categorized as endangered in the State of California since 1974. It ranges historically from Goleta in Santa Barbara County, California on the north, south to El Rosario, Baja California, Mexico (Grinnell and Miller 1944).

The BSSP is an endemic subspecies of Savannah sparrow (Massey 1979) that nests in the mid- and upper-littoral zones of coastal salt marshes (Powell 1993), where males actively defend territories around dry, non-inundated substrates (Wheelwright and Rising 1993). It typically nests in salt marsh pickleweed above the highest tide line. Nesting season extends from mid-February to August (Unitt 2004). Breeding territories can be small and BSSP nest semi colonially. They can be difficult to count accurately since they are secretive and forage throughout a marsh, often far away from nesting sites (Bradley 1973, Massey 1979). The BSSP depends entirely on the salt-marsh ecosystem not only for nesting but also for foraging. BSSP forage throughout the saltmarsh, within the vegetation, along intertidal mudflats, and sometimes on neighboring sand dunes (Bradley 1973, Zedler 1982, Zembal et al. 1988).

SURVEY METHODS

Light-footed Ridgway's Rail

Six presence/absence survey rounds were conducted for LFRR and followed both the Standardized North American Marsh Bird Monitoring Protocol (Conway 2011) and Survey Guidelines to Determine Presence/Absence of the Light-footed Clapper Rail in Southern California Recommendations of the

Clapper Rail Study Team (Konecny et al. 2009). Six surveys were conducted between March 15 and June 15, 2022, with at least one survey within each survey window March 15–March 31, April 1–April 14, April 15–April 30, May 1–May 14, May 15–May 31, and June 1–June 15 (Table 1). The six LFRR surveys were conducted by permitted biologists Antonette Gutierrez (TE-50992B-2), Beth Sabiston and B,B. Villanueva (both under TE-839480-5.5). Twenty-four stations within suitable habitat were established within the study area (Figure 2). Stations were separated into three groups (1-7: 8-17: and 18-24) and were located no less than 200 meters apart. Stations 1-7 were surveyed from a kayak and Stations 8-24 were surveyed by walking transects. Surveys covered at least one evening and one morning survey period for each survey group. The evening surveys began two hours before sunset and extended 30 minutes after sunset. Morning surveys began at or just before sunrise and proceeded for no more than three hours after sunrise. At each station, at least five-minutes of passive listening was first conducted to detect spontaneous calls from rails followed by a LFRR broadcast call, then 1 min listening, then broadcast, then 1 min listening (about 11 minutes total at each station). If LFRR were found, recorded vocalizations ceased. All LFRR detections were recorded in field notebooks and locations were mapped using ArcGIS Field Maps.

Table 1. LFRR Survey Conditions Los Peñasquitos

Survey #	Date	Station	Time	Personnel	Conditions
1	March 24, 2022	1-7	0700-0900	AG	57°-64°F, 2-1 mph, 20% cloud cover
1	March 24, 2022	8-10, 20-24	1700-1930	AG, BS	67°-60°F, 1-0 mph, 5% cloud cover
1	March 25, 2022	11-19	1700-1901	AG	60°-57°F, 1-0 mph, 5% cloud cover
2	April 5, 2022	1-7	1700-1830	AG	72°-67°F, 1 mph, 0% cloud cover
2	April 8, 2022	18-24	0600-0915	AG	50°-54°F, 1 mph, 0% cloud cover
2	April 10, 2022	8-17	0620-0945	BS	59°-62°F, 7 mph, 100% cloud cover
3	April 23, 2022	8-17	0600-0818	AG	50°-65°F, 0-1 mph, 0% cloud cover
3	April 23, 2022	18-24	1745-1920	AG	69°-57°F, 2-1 mph, 0% cloud cover
3	April 24, 2022	1-7	0635-0817	AG	54°-64°F, 3-1 mph, 0% cloud cover
4	May 1, 2022	1-7	0630-0814	AG	62°-66°F, 1-4 mph, 100% cloud cover
4	May 4, 2022	8-17	0600-0839	BV	58°-60°F 1-2 mph, 50%-0% cloud cover

4	May 5, 2022	18-24	0530-0830	BS	52°-58°F 1 mph, 100%-75% cloud cover
5	May 16, 2022	1-7	0600-0745	AG	59°F, 1-3mph, 100% cloud cover
5	May 18, 2022	8-17	0532-0801	BV	58°-61°F 5 mph, 100%-50% cloud cover
5	May 19, 2022	18-24	1730-2015	BS	61°-60°F 9-7 mph, 100% cloud cover
6	June 3, 2022	18-24	0529-0716	BV	59°-60°F 1-3 mph, 100%-50% cloud cover
6	June 4, 2022	1-7	0600-0750	AG	64°-67°F 1-2 mph, 100% cloud cover
6	June 5, 2022	8-17	0540-0840	AG	64°-67°F 0-4 mph, 100% cloud cover

Personnel: AG+ Antonette Gutierrez, BS= Beth Sabiston, BV= B.B. Villanueva. Conditions: °F = degrees Fahrenheit. mph = miles per hour

Belding's Savannah Sparrow

Five BSSP surveys were conducted between March and June 2022. Surveys for BSSP occurred between dawn and 1030 a.m. BSSP surveys included passively surveying for birds using binoculars and/or spotting scopes and listening for singing birds. Stations that were designated as LFRR listen stations (1-24: Figure 2) were used as reference points to meander through habitat suitable for BSSP. The areas around Stations 1-7 were surveyed from a kayak and the areas adjacent to Stations 8-24 were surveyed by walking transects. BSSP detection was determined by singing, visual sightings of perched birds or aerial chases. All surveys were conducted during favorable weather conditions. All BSSP detections were recorded in field notebooks and locations were mapped using ArcGIS Field Maps.

Table 2. Belding's Savannah Sparrow Survey Conditions

Survey #	Date	Stations	Personnel	Time	Conditions
1	March 24, 2022	1-7	AG	0900-1030	65°-67°, 3 mph, 0%-25% cloud cover, fog
1	April 10, 2022	8-24	AG	0600-1000	60°-65°, 1 mph, 100% cloud cover
2	April 24, 2022	1-7	AG	0830-1015	62°-64°, 1 mph, 0% cloud cover
2	April 29, 2022	8-24	BS	0530-1000	53°-63°, 5 mph, 50%-0% cloud cover
3	May 1, 2022	1-7	AG	0800-1000	58°-68°, 2-5 mph, 100%-0% cloud cover

3	May 8, 2022	8-24	AG	0600-1000	62°-63°, 3 mph, 100% cloud cover
4	May 15, 2022	8-24	AG	0630-0930	51°-66°, 0-2 mph, no cloud cover
4	May 16, 2022	1-7	AG	0800-1000	58°-68°, 2-5 mph, 100%-0% cloud cover
5	June 4, 2022	1-7	AG	0800-1000	67°-70°, 2-3 mph, 100% cloud cover
5	June 6, 2022	8-24	BS	0615-1030	64°-69°, 6-8 mph, 100%-75% cloud cover

Personnel: AG= Antonette Gutierrez, BS= Beth Sabiston. Conditions: °F = degrees Fahrenheit. mph+ miles per hour

SURVEY RESULTS

Light-footed Ridgway's Rail

At least five LFRR were identified during the surveys and at least one individual was documented incidentally outside of the survey period and adjacent to the project site (Figure 2). Between Stations 14 and 15, "Keks" were heard during Surveys #3 and #4 and by Survey #5, one LFRR pair was confirmed by a duet vocalization. In addition to the pair between Station #14 and #15, an individual was identified by a single "kek" closer to Station 15. At Station 13, a female was identifying during Survey #1 by a "kek burr" vocalization response from the LFRR broadcast call. A "kek" was documented at this same location during Survey #4 and may have been the same female or could have been a male. However, it was not confirmed if this location supported a pair. A single individual was identified by "kek" and "kek hurrah" vocalizations between Stations 3 and 4. This individual was only heard during Survey #1 and was not detected again.

The LFRR detected between Stations 3 and 4 was found in saltmarsh habitat dominated by pickleweed. The LFRR detected at Station 13 was in freshwater marsh habitat comprised of broadleaf cattail (*Typha latifolia*). Southern willow scrub habitat supported by arroyo willow housed the LFRR pair and one other individual found within the study area (Photo Left).

Additional secretive marsh birds observed at or adjacent to the survey stations included Virginia rail (*Rallus limicola*) at Stations 4, 9, 11, 10, 13, 19, 18, and 20, pied-billed grebe (*Podilymbus podiceps*) at Stations 1, 3, 4 and 22, and sora (*Porzana Carolina*) at Stations 19 and 20.

Incidental observations of sensitive and common species detected during the surveys are found in Appendix B.

Belding's Savannah Sparrow

Thirty-eight BSSP territories were consistently detected within the southern coastal saltmarsh habitat adjacent to Stations 1-7 (Figure 2). These territories were determined by observations of perched singing males or perched pairs at the location. A singing male was consistently singing at Station 10; however, a pair was not confirmed at this station. One pair of BSSP was detected at Station 14. At least 5 individuals were observed being chased by territorial males between Stations 1 and 7 and at least 10 individuals were observed perched, flying through, or foraging between Stations 8 and 15. An incidental sighting of a BSSP pair, foraging was recorded between Stations 18 and 19. During Survey #2, the lagoon was closed to the ocean and inundated and BSSP between Stations 1-7 were scattered throughout the upper reaches of the coastal salt marsh habitat. However, territorial males returned to their territories once the lagoon was opened back up to the ocean by Survey #4. No BSSP individuals were detected between Stations 16-23. Three individual BSSP were detected during Survey 1 at Station 24 but were not observed again.

DISCUSSION AND RECOMMENDATIONS

The Los Peñasquitos Lagoon supports intermittent patches of freshwater marsh and southern willow scrub habitat that is utilized by LFRR within the study area. This habitat has previously been considered marginal suitable habitat for LFRR due to the lagoon historically being dominated by pickleweed, because of prolonged closure of the ocean inlet (Zembal 2021). However, over time with freshwater influence, the freshwater marsh habitat has become more extensive and is in fair condition providing nesting and foraging habitat suitable for LFRR. LFRR presence has mostly been documented north of the railroad and south of Carmel Valley and within the Los Peñasquitos Creek which are areas inland and outside of the survey area for these efforts. Currently, the rails are found exclusively in the freshwater marsh habitat around the lagoon and up the creek (Zembal 2021).

Historically, Los Peñasquitos Lagoon has been used as a reintroduction site for the LFRR conservation breeding program. Four rails bred in the zoological facilities were released into Los Peñasquitos in 2004, four in 2007, and nine in 2009 (Zembal 2021). However, rails have not been released into this system for quite some time. The marsh conditions vary dramatically from year to year creating either lake-like conditions when the ocean inlet is closed and in other years, drought conditions that desiccate the freshwater marsh within the system (Zembal 2021). Given the confirmed presence of LFRR within the project area (i.e., north of the railroad), it is recommended that annual LFRR census surveys (Zembal 2021) include these areas and Los Peñasquitos Canyon Preserve to more accurately assess LFRR population trends.

The Los Peñasquitos has large continuous coastal salt marsh habitat that is utilized by the BSSP for nesting and foraging. This habitat varies in its' suitability for BSSP due to this habitat enduring stress from inundation caused by the closure of the ocean inlet. The BSSP territories that were detected in the first few surveys between Stations 1 and 7 were inundated by Survey #2 and BSSP were scattered throughout the habitat. During the flooded conditions BSSP were displaced and many aerial chases and perched birds were observed in the highest points of habitat adjacent to the channel and in the upper reaches of the lagoon. The mouth of the lagoon was closed to the ocean up until Survey #4 when the mouth of the lagoon was actively dredged. If there is consistent maintenance to keep the lagoon mouth open it is likely that BSSP will remain in the areas adjacent to the channel.

CONCLUSIONS

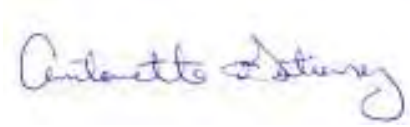
The results of these surveys have concluded the presence of LFRR within the study area. More importantly, the surveys have confirmed the presence of at least one LFRR pair; thus, nesting is highly likely. Since the study area supports a mosaic of suitable habitat where LFRR were found, habitat restoration to connect and enhance the freshwater marsh would be beneficial in supporting the recovery of LFRR at this site. Additionally, the saltmarsh habitat supports many BSSP; however, nesting was interrupted by flooded conditions. Consistent maintenance to keep the lagoon mouth open would be beneficial for both BSSP and LFRR, allowing the establishment and the creation of suitable habitat for each species.

The presence of these listed species should, therefore, be considered for any proposed lagoon restoration projects, specifically those planned to take place within or adjacent to occupied LFRR and BSSP territories. The bird breeding season should be taken into consideration for timing of any projects so as not to affect nesting birds, specifically March 1 to August 15 for LFRR and February 1 to August 1 for BSSP.

Additionally, with restoration efforts, this site may be re-considered for release of captive bred LFRR.

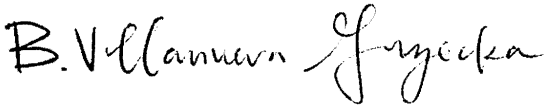
If you have any questions regarding this report, please feel free to contact me at 808-542-2941 or e-mail me at gutierrezantonette4@gmail.com, and I will address all questions and concerns.

We certify that the information in this survey and attached exhibits fully and accurately represents our work.



Antonette Gutierrez
Principal Biologist
USFWS Permit TE-50992B-2

Beth Sabiston
Permitted Biologist
USFWS Permit TE-839480-5.5



B.B. Villanueva
Permitted Biologist

USFWS Permit TE-839480-5.5

ATTACHMENTS

A: Wildlife Species List

REFERENCES

American Ornithologists' Union (AOU). 2014. Online Checklist of North American Birds. Available at http://checklist.aou.org/taxa/. Accessed April 2014.

Bradley, R. A. 1973. A population census of Belding's Savannah Sparrow, *Passerculus sandwichensis beldingi*. Western Bird Bander 48:40–43.

Conway, C.J. 2011. Standardized North American Marsh Bird Monitoring Protocol. *Waterbirds* 34(3):319-346.

Grinnell, J., and A.H. Miller. 1944. The distribution of the birds of California. Pacific Coast Avifauna No. 27. Center, California.

Konecny, J., R. Zembal, S. Hoffman. 2009. Survey Guidelines to Determine Presence/Absence of the Light-footed Clapper Rail in Southern California; Recommendations of the Clapper Rail Study Team. Unpublished Protocol

Massey, B.W., R. Zembal, and P.D. Jorgensen. 1984. Nesting habitat of the light-footed clapper rail in southern California. Journal of Field Ornithology. 55:67-80.

Massey, B. W. 1979. Belding's Savannah Sparrow. U.S. Army Corps of Engineers, Los Angeles, California, USA. DACW09-78-C-0008.

Powell, A. N. 1993. Nesting habitat of Belding's Savannah Sparrows in coastal salt marshes. Wetlands 13:219–223.

U.S. Fish and Wildlife Service. 1985. Recovery plan for the light-footed clapper rail. U.S. Fish and Wildlife Service, Portland, Oregon.

US Geological Service. 1975. 7.5-minute quadrangles: *Boucher Hill*, *Rodriguez Mountain*, and *Valley*

Unitt, Philip. 2004. San Diego County Bird Atlas. San Diego Natural History Museum. October.

Wheelwright, N. T., and J. D. Rising. 1993. Savannah Sparrow (*Passerculus sandwichensis*). No. 45 in A. Poole and F. Gill, editors. The birds of North America. The Academy of Natural Sciences, Philadelphia, Pennsylvania and the American Ornithologists' Union, Washington, D.C., USA.

Zedler, J. B. 1982. The ecology of southern California coastal salt marshes: a community profile. Report FWS/OBS-81/54. U.S. Fish and Wildlife Service, Washington, D.C., USA.

Zembal, R., K. J. Kramer, R. J. Bransfield. and N. Gilbert. 1988. A survey of Belding's Savannah sparrows in California. American Birds 42:1233–1236.

Zembal, R., and S. Hoffman. 2010. A Survey of the Belding's Savanna Sparrow in California, 2010 Season. Report to California Department of Fish and Game, for the Clapper Rail Recovery Fund. 15pp.

Zembal, R., S.M. Hoffman, John Konecny and Beth Sabiston. 2019 Status and Distribution of Light-footed

Ridgway's (Clapper) Rail in California, 2019. California Department of Fish and Wildlife, Wildlife Branch, Nongame Wildlife Program Report, 2019. Sacramento, CA.

Zembal, R., S.M. Hoffman, and John Konecny. 2021 Status and Distribution of Light-footed Ridgway's (Clapper) Rail in California, 2021. California Department of Fish and Wildlife, Wildlife Branch, Nongame Wildlife Program Report, 2021. Sacramento, CA.

APPENDIX A

Los Peñasquitos Restoration Project Design Phase 1 LFRR and BSSP Observed/Detected Wildlife Species List

AVES	BIRDS
ACCIPITRIDAE	**Hawks & eagles**
Accipiter cooperii	Cooper's hawk
Buteo jamaicensis	red-tailed hawk
Elanus leucurus	white-tailed kite
AEGITHALIDAE	**Long-tailed tits**
Psaltriparus minimus	bushtit
ANATIDAE	**Swans, Geese, and Ducks**
Anas platyrhynchos	mallard
Branta canadensis	Canada goose
Bucephala albeola	bufflehead
ARDEIDAE	***Herons and Bitterns***
Ardea herodias	great blue heron
Ardea alba	great egret
Botaurus lentiginosus	American bittern
Butorides virescens	green heron
Egretta thula	snowy egret
Ixobrychus exilis hesperis	western least bittern
Nycticorax nycticorax	black-crowned night heron
CARDINALIDAE	**Cardinals & allies**
Passerina caerulea	blue grosbeak
Pheucticus melanocephalus	black-headed grosbeak
Piranga ludoviciana	western tanager
CHARADRIIDAE	**Plovers and Relatives**
Charadrius vociferous	killdeer
COLUMBIDAE	**Pigeons & doves**
* *Columba livia*	rock pigeon
Zenaida macroura	mourning dove
CORVIDAE	**Crows & jays**
Corvus brachyrhynchos	American crow
Corvus corax	common raven
FALCONIDAE	**Falcons**
Falco sparverius	American kestrel
FRINGILLIDAE	**Finches & allies**
Haemorhous mexicanus	house finch
Spinus psaltria	lesser goldfinch
HIRUNDINIDAE	**Swallows**

Hirundo rustica	barn swallow
Petrochelidon pyrrhonota	cliff swallow
Stelgidopteryx serripennis	northern rough-winged swallow
ICTERIDAE	**New World blackbirds, orioles & allies**
Agelaius phoeniceus	red-winged blackbird
Icterus bullockii	Bullock's oriole
Icterus cucullatus	hooded oriole
Icteria virens	yellow-breasted chat
Quiscalus mexicanus	great-tailed grackle
Molothrus ater	brown-headed cowbird
Sturnella neglecta	western meadowlark
LARIDAE	**Gulls and Terns**
Larus occidentalis	western gull
LARIDAE	**Gulls, terns & skimmers**
Hydroprogne caspia	Caspian tern
Sterna forsteri	Forster's tern
MIMIDAE	**Mockingbirds & thrashers**
Mimus polyglottos	northern mockingbird
Toxostoma redivivum	California thrasher
ODONTOPHORIDAE	**New World quails**
Callipepla californica	California quail
PANDIONIDAE	**Osprey**
Pandion haliaetus	osprey
PARULIDAE	**Wood warblers & relatives**
Cardellina pusilla	Wilson's warbler
Geothlypis trichas	common yellowthroat
Oreothlypis celata	orange-crowned warbler
Setophaga coronata	yellow-rumped warbler
Setophaga occidentalis	hermit warbler
Setophaga petechia	yellow warbler
Setophaga townsendi	Towsend's warbler
PASSERELLIDAE	**Sparrows & allies**
Melospiza melodia	song sparrow
Melozone crissalis	California towhee
Pipilo maculatus	spotted towhee
Zonotrichia leucophrys	white-crowned sparrow
PELECANIDAE	**Pelicans**
Pelecanus erythrorhynchos	American white pelican
PICIDAE	**Woodpeckers & allies**
Picoides nuttallii	Nuttall's woodpecker
PHALACROCORACIDAE	**Cormorants**
Phalacrocorax auritus	double-crested cormorant
PODICIPEDIDAE	**Grebes**
Podilymbus podiceps	pied-billed grebe
RALLIDAE	**Rails, Gallinules, and Coots**

Porzana carolina	sora
Fulica americana	American coot
Rallus limicola	Virginia rail
Rallus obsoletes levipes	light-footed Ridgway's rail
STURNIDAE	**Starlings & allies**
* *Sturnus vulgaris*	European starling
SYLVIIDAE	**True warblers & parrotbills**
Chamaea fasciata	wrentit
Polioptila californica	coastal California gnatcatcher
TROCHILIDAE	**Hummingbirds**
Calypte anna	Anna's hummingbird
Calypte costae	Costa's hummingbird
Selasphorus sp.	Allen's or Rufous Hummingbird
TROGLODYTIDAE	**Wrens**
Cistothorus palustris	marsh wren
Troglodytes aedon	house wren
Thryomanes bewickii	Bewick's wren
TYRANNIDAE	**Tyrant flycatchers**
Sayornis nigricans	black phoebe
Sayornis saya	Say's phoebe
Tyrannus vociferans	Cassin's kingbird

AMPHIBIA	**AMPHIBIANS**
RANIDAE	**Frogs**
**Lithobates catesbeianus*	American bullfrog
REPTILIA	**REPTILES**
PHRYNOSOMATIDAE	**Zebra-tailed, earless, fringe-toed, spiny, tree, side-blotched & horned lizards**
Sceloporus occidentalis longipes	Great Basin fence lizard
Uta stansburiana elegans	western side-blotched lizard

MAMMALIA	**MAMMALS**
CANIDAE	**Foxes, wolves & allies**
Canis latrans	coyote
CRICETIDAE	**New World rats and mice & allies**
Neotoma fuscipes	dusky-footed woodrat
GEOMYIDAE	**Gophers**
Thomomys bottae	Botta's pocket gopher
LEPORIDAE	**Rabbits & hares**
Sylvilagus audobonii	desert cottontail
PROCYONIDAE	**Raccoons & allies**
Procyon lotor	raccoon
SCIURIDAE	**Squirrels**

Otospermophilus beecheyi	California ground squirrel

** Non-native species*

Appendix F: Focused Rare Plant Survey Report

Los Peñasquitos Lagoon Restoration Project – Phase 1, San Diego, San Diego County, CA
(Blackhawk Environmental, 2020a)

1720 Midvale Drive
San Diego, CA, 92105
Phone: 619.972.7932
Phone: 619.972.8714
www.blackhawkenv.com

September 21, 2020

Burns & McDonnell, Inc.
Attn: Mr. David Pohl
4225 Executive Square, Suite 500
La Jolla, CA 92037

Focused Rare Plant Survey Report

Los Peñasquitos Lagoon Restoration Project – Phase 1

San Diego, San Diego County, CA

Dear Mr. Pohl:

Blackhawk Environmental, Inc. (Blackhawk) was contracted by Burns & McDonnell, Inc. to conduct several biological resources surveys during 2020 in Phase 1 of the proposed Los Peñasquitos Lagoon Restoration Project (Project) located in the City of San Diego and Torrey Pines State Natural Reserve in San Diego County, California (Attachment A, Figure 1). The Phase 1 area covers a total of 233.72 acres. This report includes literature review results for special-status plant species occurrences within the vicinity of the Project site and focused rare plant survey methods and results from spring and summer of 2020. This report is intended to provide the survey results for Project planning purposes and to offer prescriptive avoidance, minimization and/or mitigation measures for special-status plant species found on the Project site. Documented special-status plant species locations provided in this report can be cross-referenced with Project impact areas to determine where Environmentally Sensitive Areas (ESAs) may be designated to protect special-status plant populations during construction activities.

METHODS

A literature review for known occurrences of special-status plant species was conducted by Environmental Science Associates (ESA) in 2016 in order to determine if special-status plant species or related resources had been reported in the vicinity of the Project site; ESA later conducted focused rare plant surveys in 2016 on the Project site as it was defined at that time. Blackhawk also utilized literature review results from 2017 for a separate but adjacent project in Torrey Pines State Natural Reserve (ECORP and Blackhawk 2019). These reviews were performed via searches of the California Natural Diversity Database (CNDDB), United States Fish & Wildlife Service (USFWS)-designated critical habitat, USFWS species occurrence data, County of San Diego SanBIOS database, and California Native Plant Society (CNPS) Online Inventory of Rare and Endangered Plants of California (ESA 2016, ECORP and Blackhawk 2019) (Attachment D). Following the literature review, a preliminary potential for occurrence (PFO) was assigned to each species as cross-referenced by existing conditions on the Project site and hypothesized suitability. Based on the results of the literature review and analysis of the previous focused rare plant survey results from 2016, Blackhawk performed focused rare plant surveys within the Project site. It is important to note that the nature of this survey included cataloging all plant species observed within the Project site, including those presumed to be absent in the preliminary

literature review and possibly other special-status species that may not yet be known within the vicinity of the Project site. The surveys were conducted by a team of six Blackhawk biologists (Kris Alberts, Seth Reimers, Ryan Quilley, Lorena Bernal, Katie Quint and Ian Maunsell) walking in slightly meandering transects approximately 20 to 60 feet apart from one another along the entire 233.72-acre Project site in order to achieve 100% visual coverage. In some instances, where proximal development did not preclude the presence of special-status plant species, the survey area was extended approximately 30 feet beyond the Project boundary to document special-status plant locations adjacent to the Project boundary. In general, the distance between transects increased or decreased as necessary in order to ensure full coverage and varied with factors such as habitat type, topography, vegetative density and height, access restrictions and target species morphological traits. Since some of the target species could be identified from non-floral characteristics outside of bloom periods, and many other special-status plant species known in the region have generally overlapping bloom periods, one survey pass along the entire Project site, followed by a second pass through coastal sage scrub, marshland and disturbed habitats only, was sufficient to capture the presence/absence of any potentially occurring special-status plant species for this Project. In addition, follow-up incidental observations were made during other surveys (e.g., jurisdictional delineation, vegetation mapping) for this Project through August 26, 2020. Focused rare plant survey dates included May 15, May 22, May 26, June 3, July 23, July 28, July 29, July 30, August 5, August 6 and September 9, 2020.

On each focused rare plant survey pass, each surveyor recorded every plant species encountered along their survey route in his or her field notes. In order to make specific or sub-specific determinations, digital photographs and/or small samples were collected for some species that required further analysis. Digital photographs were collected for each special-status species found, as well as its habitat on the Project site (Attachment B). Blackhawk utilized Principal Botanist Ryan Meszaros for final quality assurance/quality control (QA/QC) of plant specimens. The biologists worked collaboratively as a team to ensure that all observed plants were documented correctly for proper presentation in the findings of this report.

Botanical taxonomy follows *The Jepson Manual: Vascular Plants of California, second edition* and the *Jepson eFlora* except where local experts Rebman and Simpson used alternate nomenclature in accordance with the *Checklist of Vascular Plants of San Diego County, 5th edition* (in press). Invasive plants were identified utilizing California Invasive Plant Council's (Cal-IPC) Inventory Database (http://www.cal-ipc.org/paf/). The list of plant species observed is presented in Attachment C.

RESULTS

A total of 342 plant species belonging to 89 families were documented within the Project site; 131 were non-native and/or invasive (Attachment C). Thirteen special-status plant species were documented (Attachment A):

- San Diego sagewort (*Artemisia palmeri*)
- Del Mar mesa sand aster (*Corethrogyne filaginifolia* var. *linifolia*)
- Coast wallflower (*Erysimum ammophilum*)
- San Diego barrel cactus (*Ferocactus viridescens*)
- Sessileflower false goldenaster (*Heterotheca sessiflora* ssp. *sessiflora*)
- San Diego marsh-elder (*Iva hayesiana*)

- Southwestern spiny rush (*Juncus acutus* ssp*. leopoldii*)
- Sea dahlia (*Leptosyne maritima*)
- California boxthorn (*Lycium californicum*)
- South Coast branching phacelia (*Phacelia ramosissima* var*. austrolitoralis*)
- Torrey pine (*Pinus torreyana*)
- Nuttall's scrub oak (*Quercus dumosa*)
- Woolly seablite (*Suaeda taxifolia*)

Five of these species (San Diego sagewort, San Diego marsh-elder, southwestern spiny rush, Torrey pine and Nuttall's scrub oak) were reported to occur within the Project site from the surveys performed by ESA in 2016. None of the 13 species are State or federally-listed as threatened or endangered, but all 12 species have a California Rare Plant Rank (CRPR) that ranges from 1B.1 (most sensitive) to 4.2 (least sensitive). All 13 of these species are discussed in the following sub-sections.

San Diego Sagewort

San Diego sagewort is designated as a CRPR 4.2 species. The List 4 designation indicates that this species is not uncommon from a statewide perspective, but it is of limited distribution and is uncommon enough, such that it is essentially on a "Watch List" to monitor populations for any changes that may necessitate a higher ranking in the future. The .2 extension means that CNPS considers this species moderately threatened in California, with 20-80% of occurrences threatened in some capacity.

San Diego sagewort is a biennial or perennial herb with brittle stems one to three meters tall, and with long, narrow, bi-colored leaves deeply divided into several narrow, pointed lobes. Similar to other species within this genus, it contains a very strong aroma. The inflorescence is composed of clusters of pale-yellow hairy disk florets at the distal end of the stem. This species generally occurs in moist riparian, chaparral and coastal sage scrub habitats, particularly within moist drainages with sandy soils.

San Diego sagewort was found from the southern end of the Project site to the northern extent. Approximately 375 individuals were documented in 98 locations of moist areas within riparian and coastal sage scrub habitats. Locations ranged from single individuals to small patches of several to dozens of individuals.

Del Mar Mesa Sand Aster

Del Mar mesa sand aster is designated as a CRPR 1B.1 and City of San Diego Multiple Species Conservation Program-(MSCP) covered species. The List 1B designation indicates that this species is rare throughout its range within, as well as outside of California. The .1 extension means that CNPS considers this species seriously endangered in California, with over 80% of occurrences threatened in some capacity.

Del Mar mesa sand aster is a perennial herb endemic to coastal southern California that can grow up to one meter in height. Foliage and stems are typically gray-green and puberulent to hairy. The flower cluster is a single flower head or array of several heads at the tips of stem branches. This species is primarily found in open areas of sandy soils in chaparral and coastal sage scrub habitats in coastal San Diego County.

Del Mar mesa sand aster was mapped in 45 locations toward the northern and western ends of the Project site. Approximately 1,965 individuals were mapped in openings of coastal sage scrub and semi-disturbed areas within coastal sage scrub habitat, often in proximity to one another as dense or semi-dense patches.

Coast Wallflower

Coast wallflower is designated as a CRPR 1B.2 and MSCP-covered species. The List 1B designation indicates that this species is rare throughout its range within, as well as outside of California. The .2 extension means that CNPS considers this species moderately threatened in California, with 20-80% of occurrences threatened in some capacity.

Coast wallflower is a biennial or short-lived perennial herb endemic to California. It can vary in size from a few centimeters to just over a meter in height. It has long narrow dark green leaves, and the inflorescence is an array of bright yellow flowers, each with four rounded petals, at the top of each stem. This species occurs in coastal strand communities and is primarily found along coastal dunes, though it is also found on sandy soils in coastal sage scrub near the coast.

Coast wallflower was found in in association with coastal sage scrub in 19 locations toward the western and northern ends of the Project site, occurring as single to few individuals per mapped location, accounting for approximately 205 total plants.

San Diego Barrel Cactus

San Diego barrel cactus is designated as a CRPR 2B.1 and MSCP-covered species. The List 2B designation indicates that this species may be rare, threatened, or endangered in California, but is common in areas outside of California. The .1 extension means that CNPS considers this species seriously endangered in California, with over 80% of occurrences threatened in some capacity.

San Diego barrel cactus is a succulent scrub with a spherical or nearly cylindrical stem that is usually wider than it is tall. The stem is usually bright green with several ribs covered in arrays of long spines. It is found in chaparral, valley grasslands, coastal sage scrub, and occasionally, freshwater wetland habitats. This species is particularly threatened by urbanization and human activities such as off-road recreation and illegal collecting.

San Diego barrel cactus was mapped in three locations of coastal sage scrub along the western and northern ends of the Project site, occurring as one to few individuals per location, accounting for nine total plants.

Sessileflower False Goldenaster

Sessileflower false goldenaster is designated as a CRPR 1B.1 species. The List 1B designation indicates that this species is rare throughout its range within, as well as outside of California. The .1 extension means that CNPS considers this species seriously endangered in California, with over 80% of occurrences threatened in some capacity.

Sessileflower false goldenaster is a perennial herb with numerous branches that ascend from a central base. Its stems and leaves are moderately to densely stiff-hairy, and its wavy-margined leaves tend to cling toward the stem. Its yellow ray flowers occur at the top of the plant in single flowers on the end

of its inflorescences. This species is mostly associated with beaches, mud flats and dunes and is found mainly in coastal southern California.

Sessileflower false goldenaster was documented in two locations in the northern and western portions of the Project site in semi-disturbed areas and openings of coastal sage scrub, accounting for approximately 10 individuals.

San Diego Marsh-Elder

San Diego marsh-elder is designated as a CRPR 2B.2 species. The List 2B designation indicates that this species may be rare, threatened, or endangered in California, but is common in areas outside of California. The .2 extension means that CNPS considers this species moderately threatened in California, with 20-80% of occurrences threatened in some capacity.

San Diego marsh-elder is a low-growing perennial herb to subshrub that grows up to one meter in height with green leaves that are oval-shaped, fleshy, hairy, and aromatic. Flowers contain translucent corollas and simple yellow stamens. This species primarily occurs within alkaline flats, depressions, and streambanks.

San Diego marsh-elder was found in 78 locations in marshland habitats within the central portion of the Project site. Locations ranged from one to many individuals, accounting for approximately 1,135 individuals collectively.

Southwestern Spiny Rush

Southwestern spiny rush is designated as a CRPR 4.2 species. The List 4 designation indicates that this species is not uncommon from a statewide perspective, but it is of limited distribution and is uncommon enough, such that it is essentially on a "Watch List" to monitor populations for any changes that may necessitate a higher ranking in the future. The .2 extension means that CNPS considers this species moderately threatened in California, with 20-80% of occurrences threatened in some capacity.

Southwestern spiny rush is a perennial grass-like herb typically occurring in coastal dunes (mesic), meadows and seeps (alkaline seeps), and marshes and swamps (coastal salt). Like similar species in the Juncaceae family, it has rigid, cylindric stems and basal leaves with stiff, sharp tips.

Southwestern spiny rush was found in 43 locations in marshland habitats within the northern and central portions of the Project site, with most located toward the northern end of the Project site. Mapped locations ranged from one to many individuals, accounting for approximately 580 individuals.

Sea Dahlia

Sea dahlia is designated as a CRPR 2B.2 species. The List 2B designation indicates that this species may be rare, threatened, or endangered in California, but is common in areas outside of California. The .2 extension means that CNPS considers this species moderately threatened in California, with 20-80% of occurrences threatened in some capacity.

Sea dahlia is a perennial herb with very fleshy leaves and hollow fragile stems that grow from a fleshy taproot. Only one or two yellow flowers are found per stem, and flowers consist of many yellow ray and

disk flowers typical of the Asteraceae family. This species occurs in coastal sage scrub habitats, typically along coastal bluffs or dunes.

Sea dahlia was mapped in 20 locations in coastal sage scrub along the western and northern portions of the Project site, collectively amounting to approximately 515 individuals.

California Boxthorn

California boxthorn is designated as a CRPR 4.2 species. The List 4 designation indicates that this species is not uncommon from a statewide perspective, but it is of limited distribution and is uncommon enough, such that it is essentially on a "Watch List" to monitor populations for any changes that may necessitate a higher ranking in the future. The .2 extension means that CNPS considers this species moderately threatened in California, with 20-80% of occurrences threatened in some capacity.

California boxthorn is a slightly thorny shrub with thick, fleshy, bulbous green leaves and bell-shaped white flowers with a purple-tinge. In dry summer conditions, it can lose all of its leaves, but given a consistent water supply, it can remain evergreen. It is a coastal species found primarily in coastal sage scrub habitat.

California boxthorn was mapped as a single individual in coastal sage scrub toward the western end of the Project site.

South Coast Branching Phacelia

South coast branching phacelia is designated as a CRPR 3.2 species. The list 3 designation indicates that further information is needed regarding this species in order to properly assign it to one of the other ranks. The .2 extension means that CNPS considers this species moderately threatened in California, with 20-80% of occurrences threatened in some capacity.

South coast branching phacelia is a perennial herb that can grow up to approximately 1.5 meters tall. It is generally prostrate or upright and can be glabrous or densely hairy on its surface. The flower cluster is a one-sided curving or coiling cyme of funnel- or bell-shaped flowers that are white to light purple in color. This species occurs in diverse habitats, including sand dunes, salt marshes, coastal bluffs, canyons, washes, flats, meadows and coniferous forests.

South coast branching phacelia was found in 96 locations toward the northern and western portions of the Project site, occurring as single to several individuals per mapped location. It was found in association with coastal sage scrub, non-native grassland, blue elderberry stands and riparian habitats. The collective total within the Project site includes approximately 785 individuals.

Torrey Pine

Torrey pine (*Pinus torreyana* ssp. *torreyana*) is designated as a CRPR 1B.2 and MSCP-covered species. The List 1B designation indicates that this species is rare throughout its range within, as well as outside of California. The .2 extension means that CNPS considers this species moderately threatened in California, with 20-80% of occurrences threatened in some capacity.

Torrey pine is a tall, perennial evergreen tree in the Pinaceae family. It is found in closed-cone coniferous forests, coastal sage scrub and chaparral near the ocean in sandstone soils up to 160 meters

in elevation. It is a five-fascicled pine tree with among the longest fascicles of any pine species. The fascicles have evolved to maximize moisture collection potential from coastal fog by concentrating water drops along its fascicles before dropping them to the ground below. Trees in sheltered areas tend to grow taller than those in wind-exposed areas that may become stunted by onshore winds.

A total of 24 Torrey pines were mapped in various habitats along the west-central and northern portions of the BSA during the 2016 general reconnaissance surveys, as well as the 2020 focused rare plant surveys (ESA, 2016a and Blackhawk, 2020a).

Nuttall's Scrub Oak

Nuttall's scrub oak is designated as a CRPR 1B.1 species. The List 1B designation indicates that this species is rare throughout its range within, as well as outside of California. The .1 extension means that CNPS considers this species seriously endangered in California, with over 80% of occurrences threatened in some capacity.

Nuttall's scrub oak is a generally evergreen shrub growing one to three meters tall with leaves that are spiny or toothed at the edges. This oak sprouts vigorously from its stump and root crown after wildfire and can develop a large canopy. Its growth form at maturity is often wider than it is taller, and it features many geometrically, neatly-angled twigs. It is found primarily in chaparral and coastal sage scrub habitats. The greatest threat to this species is habitat loss.
Nuttall's scrub oak was found in 27 locations mostly along the western and northern portions of the Project site, occurring as single individuals up to dominant patches of habitat. This species was found in association with scrub oak chaparral, Torrey pine forest, coastal sage scrub and riparian scrub habitats. The collective total onsite includes approximately 115 individuals.

Woolly Seablite

Woolly seablite is designated as a CRPR 4.2 species. The List 4 designation indicates that this species is not uncommon from a statewide perspective, but it is of limited distribution and is uncommon enough, such that it is essentially on a "Watch List" to monitor populations for any changes that may necessitate a higher ranking in the future. The .2 extension means that CNPS considers this species moderately threatened in California, with 20-80% of occurrences threatened in some capacity.

Woolly seablite is a subshrub or shrub with several dull gray-brown branches protruding from the base and many spreading herbaceous branches that are pale green to red. Leaves are succulent-like, and generally there are flower clusters of 1-3 flowers throughout. The flower has no petals and is composed of a calyx of fleshy, rounded, hairy sepals. This species is typically found along coastal bluffs, coastal dunes and margins of coastal salt marshes.

Woolly seablite was found in one location at the northern end of the Project site, occurring as a patch of approximately 60 individuals in coastal salt marsh.

DISCUSSION & RECOMMENDATIONS

Recommendations for the special-status plant species observed during these surveys are presented on a broad basis of avoidance, minimization and/or mitigation. First, as the Project design becomes formalized, documented special-status plant species locations should be cross-referenced with

engineering designs for avoidance during the planning stages to the greatest extent possible by proposing Project activities to occur away from these locations. Then, after the Project design is finalized but before the Project construction phase begins, temporary construction fencing and signage should be installed around mapped special-status plant species locations where Project impacts have the potential to occur. This measure would be intended to exclude access to fenced areas via machinery, personnel, materials and/or equipment throughout the construction phase. However, if Project designs will require that some special-status plant species locations will be impacted by construction, then those impacts should be minimized to the greatest extent feasible. Where such impacts cannot be avoided, then the impacts should be mitigated through the onsite restoration of all impacted special-status plant species that would yield an equal or greater number of directly impacted special-status plant species.

CONCLUSION

The focused rare plant surveys conducted by Blackhawk Environmental in 2020 greatly added to the dataset of previously documented special-status plant species locations within the Los Penasquitos Lagoon Restoration Project Phase I boundary. The previous survey conducted by ESA in 2016 yielded four special-status plant species in 36 locations; the 2020 survey yielded 12 special-status plant species in hundreds of locations. This data will be useful in planning the Project to avoid, minimize and/or mitigate for Project-related impacts to special-status plant species known to occur on the Project site.

If you have any questions regarding this report, please feel free to call me at 619-972-8714 or e-mail me at kris@blackhawkenv.com.

Sincerely,

Kris Alberts

Kris Alberts
Principal Biologist – Vice President

BLACKHAWK Environmental

ATTACHMENTS

A Figures
B Photo Pages
C Observed Plant Species List
D Potentials for Occurrence Tables

REFERENCES

Baldwin, B. G., D. H. Goldman, D. J. Keil, R. Patterson, T. J. Rosatti, and D. H. Wilken, editors. 2012. The Jepson Manual: Vascular Plants of California, Second Edition. University of California Press, Berkeley, CA.

Calflora. 2020. Information on California plants for education, research and conservation. [web application]. Berkeley, California: The Calflora Database [a non-profit organization]. Available: http://www.calflora.org/. Accessed May through August, 2020.

California Department of Fish and Wildlife (CDFW). 2009 Protocols for Surveying and Evaluating Impacts to Special-status Native Plant Populations and Natural Communities. Sacramento, CA: California Department of Fish and Game, November 24, 2009.

California Department of Food and Agriculture (CDFA) and California Invasive Weed Awareness Coalition (CALIWAC). 2005. California Noxious & Invasive Weed Action Plan.

California Department of Parks and Recreation (DPR). 1984. San Diego Coastal State Park System General Plan, Volume 8 – Torrey Pines State Beach and State Reserve. July 1984.

California Invasive Plant Council (CAL-IPC). 2006. California Invasive Plant Inventory. CAL-IPC Publication 2006-02. California Invasive Plant Council, Berkeley, CA.

California Native Plant Society (CNPS). 2020a. Calscape. https://calscape.org [accessed on August 3, 2020].

California Native Plant Society (CNPS). 2020b. Rare Plant Program. Inventory of Rare and Endangered Plants (online edition, v8-02). California Native Plant Society, Sacramento, CA. Available at http://www.rareplants.cnps.org.

City of San Diego. 1998. Final Multiple Species Conservation Plan. MSCP Plan. August 1998.

City of San Diego. 2012. San Diego Municipal Code Land Development Code Biology Guidelines. June 2012.

Cypher, E.A. 2002. General Rare Plant Survey Guidelines. California State University, Stanislaus. Endangered Species Recovery Program, Revised July 2002.

ECORP Consulting Inc. and Blackhawk Environmental. 2019. Torrey Pines State Natural Reserve Utility Modernization Project Short- Biological Technical Report. June 5, 2019.

Environmental Science Associates (ESA). June 2016. Draft Biological Technical Report. Sorrento/Los Peñasquitos Waterways Restoration and Improvement Program. City of San Diego, San Diego County, CA.

Google. 2020. Google Earth. US Department of State Geographer. Data SIO, U.S. Navy, NGA, GEBCO. *earth.google.com/.*

Holland, R.F. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. Unpublished report. California Department of Fish and Game. Sacramento, CA.

Jepson Flora Project. 2012 (v. 1.0). Jepson eFlora, [Euphorbia], [by David J. Keil, Thomas J. Rosatti, Mark H. Mayfield & Daryl Koutnik], http://ucjeps.berkeley.edu/IJM.html [accessed on June 7, 2014].

Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2016. *The National Wetland Plant List: 2016 wetland ratings.* Phytoneuron 2016-30: 1-17. Published 28 April 2016. ISSN 2153 733X

Oberbauer, T., Kelly, M. and J. Buegge. 2008. Draft Vegetation Communities of San Diego County. Based on "Preliminary Descriptions of the Terrestrial Natural Communities of California". Holland.

Rebman, Jon Paul, and Michael George Simpson. 2014, *in press.* Checklist of the Vascular Plants of San Diego County. San Diego Natural History Museum.

Sawyer, J.O., T. Keeler-Wolf, J.M. Evens.2009. A Manual of California Vegetation, Second Edition. California Native Plant Society. Sacramento, California.

Sproul, F., T. Keeler-Wolf, P. Gordon-Reedy, J. Dunn, A. Klein, K. Harper. 2011. Vegetation Classification Manual for Western San Diego County (VCMWSDC), First Edition. AECOM, California Department of Fish and Game, Vegetation Classification and Mapping Program, Conservation Biology Institute. February 2011.

United States Fish and Wildlife Service (USFWS). 1996. Guidelines for conducting and reporting botanical inventories for federally listed, proposed, and candidate plants. Sacramento, California.

United States Fish and Wildlife Service (USFWS). 2020. National Wetlands Inventory (NWI). https://www.fws.gov/wetlands/.

ATTACHMENT A

Figures

Blackhawk Environmental

Source: National Geographic, Esri

Figure 1-1

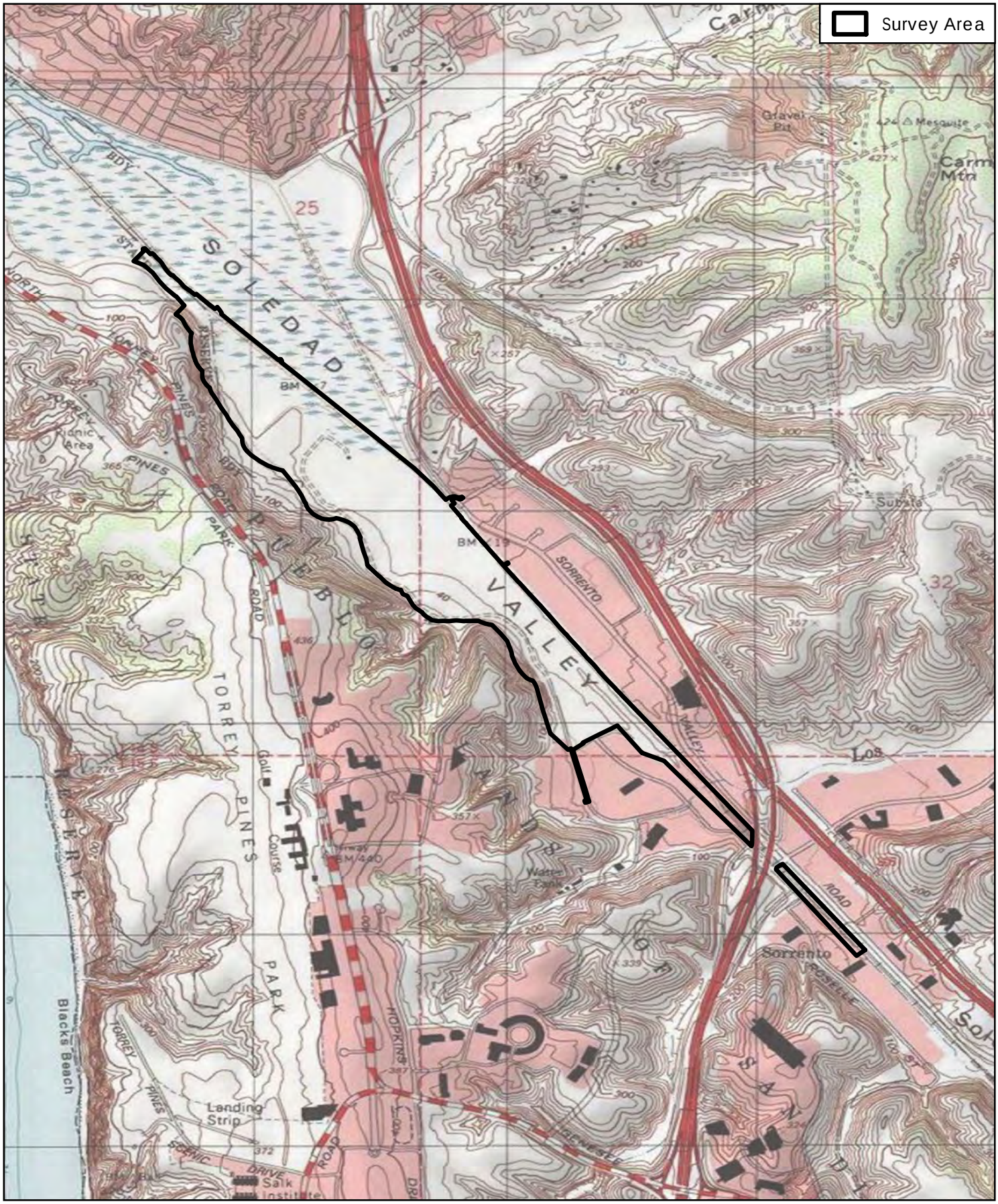
Regional Location Map

Los Peñasquitos Design Phase 1

BLACKHAWK Environmental

N

0 4 Miles



Source: USGS 7.5' Quadrangle Maps (Del Mar), Esri

Figure 1-2

Project Vicinity Map

BLACKHAWK Environmental

N

0 2,000 Feet

Los Peñasquitos Design Phase 1

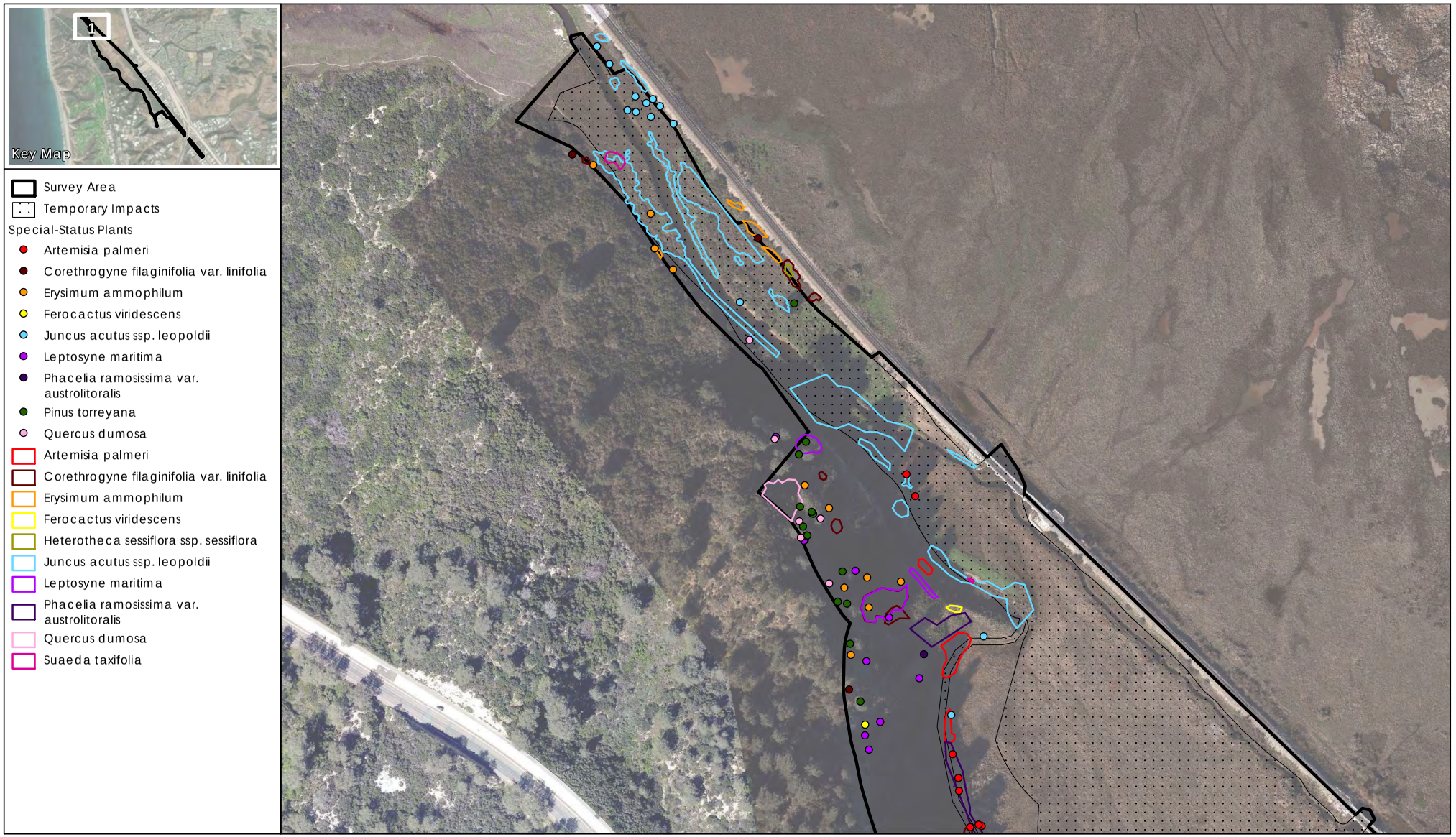


Figure 3-4a

Special-Status Plants

Los Peñasquitos Design Phase 1

Blackhawk Environmental

N

0 200 Feet

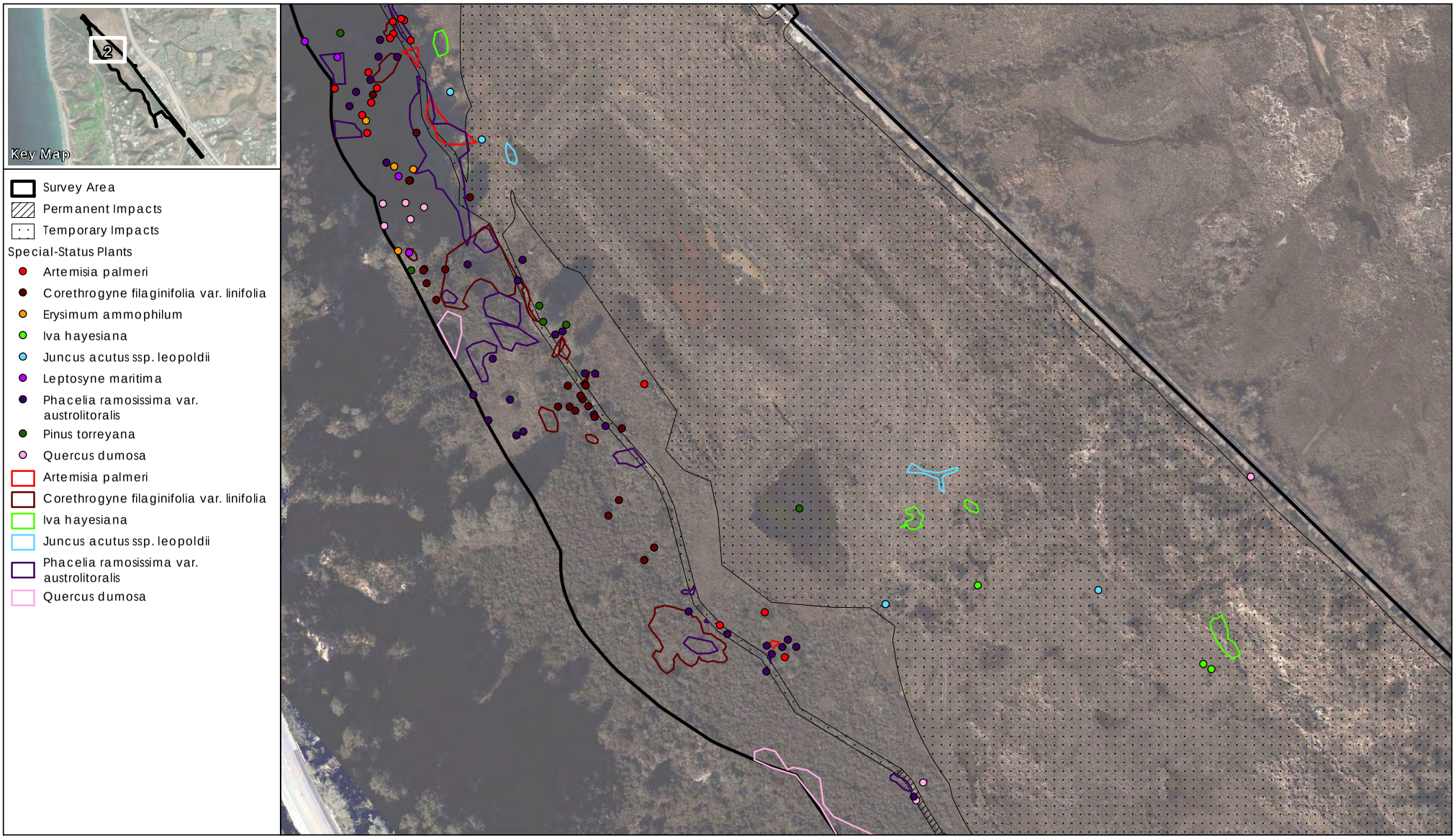


Figure 3-4b

Special-Status Plants

Blackhawk Environmental

N

0 200 Feet

Los Peñasquitos Design Phase 1

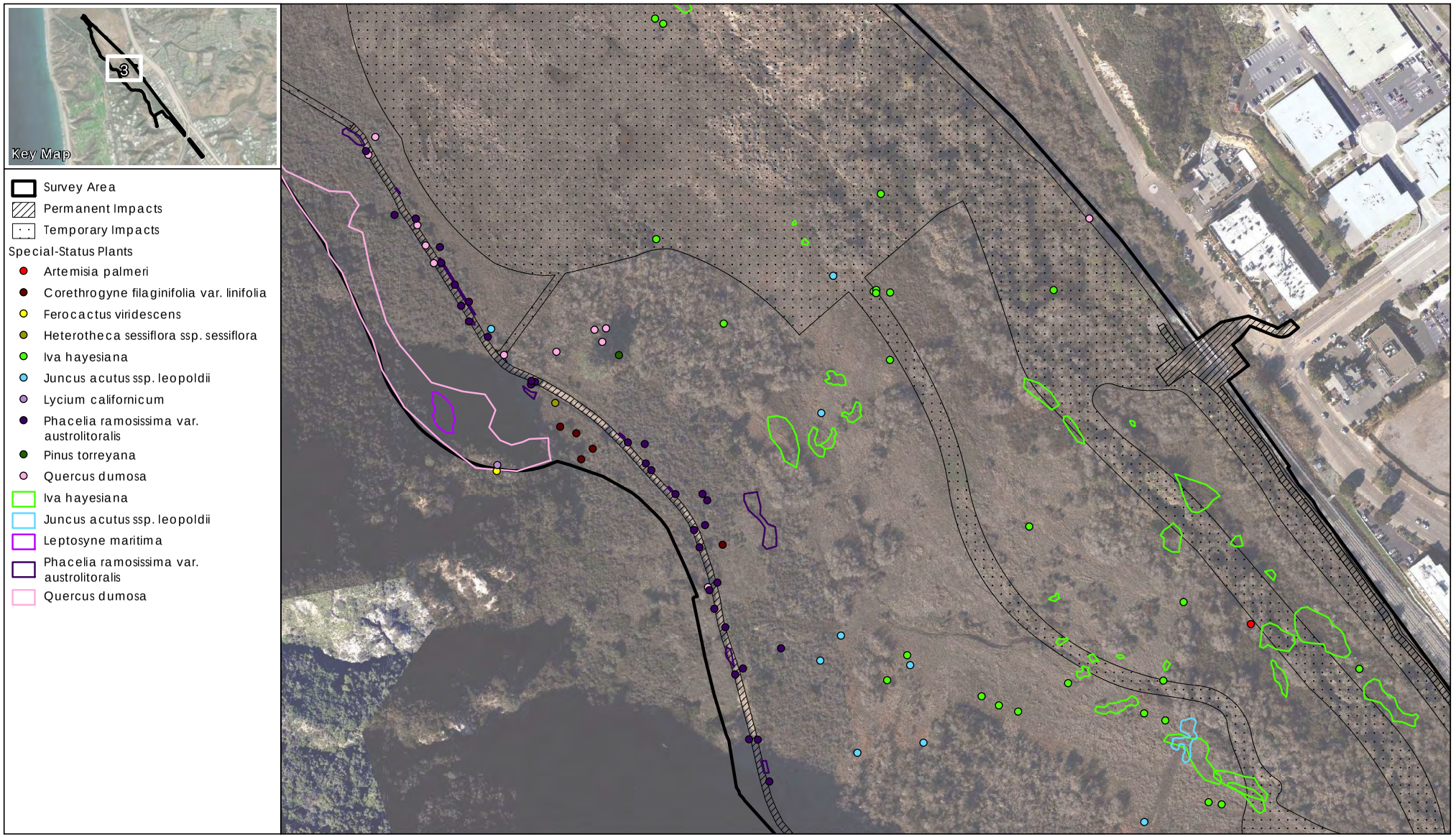


Figure 3-4c

Special-Status Plants

Los Peñasquitos Design Phase 1

Blackhawk Environmental

N

0 200 Feet

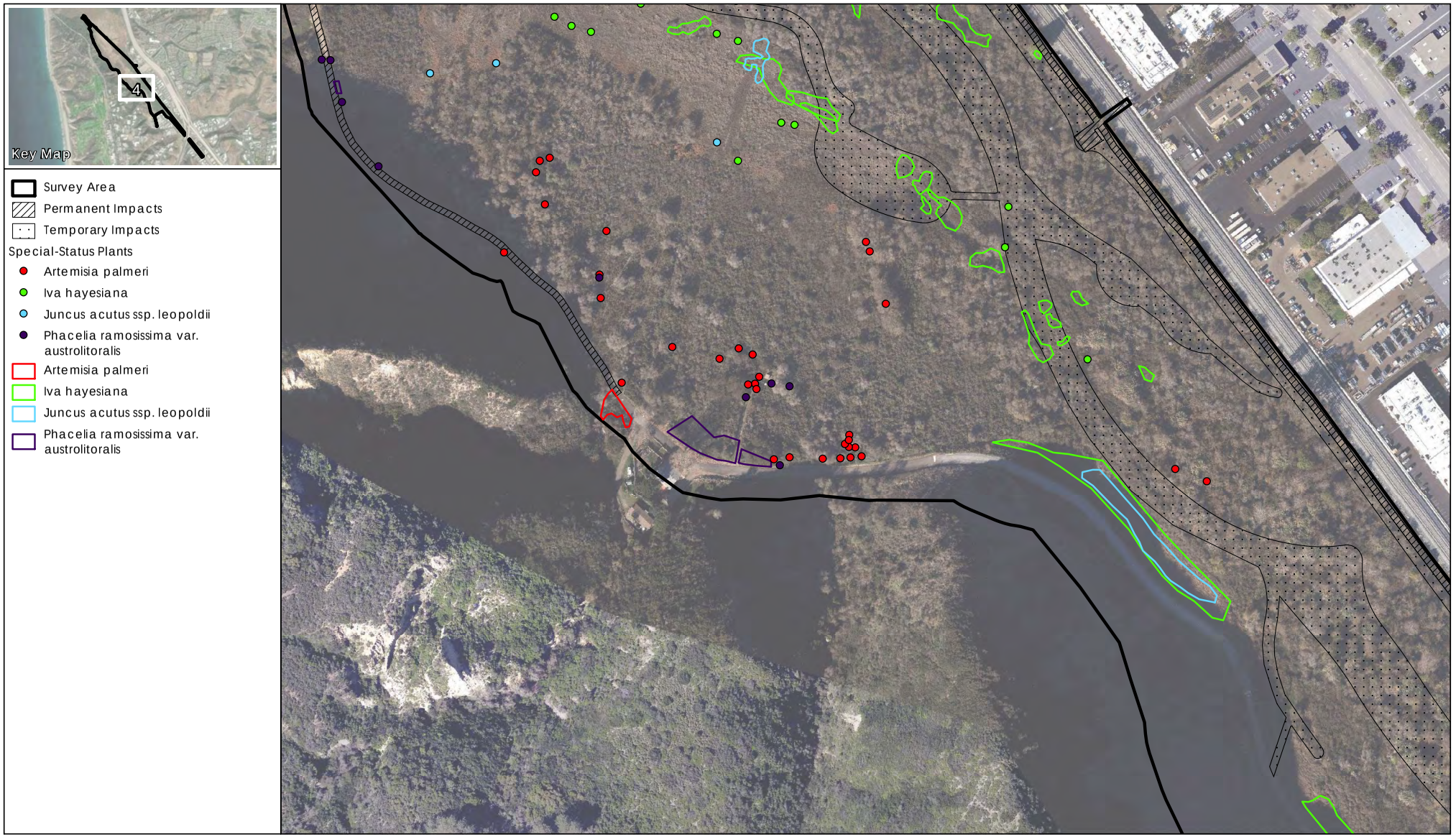


Figure 3-4d

Special-Status Plants

Los Peñasquitos Design Phase 1

Blackhawk Environmental

N

0 200 Feet

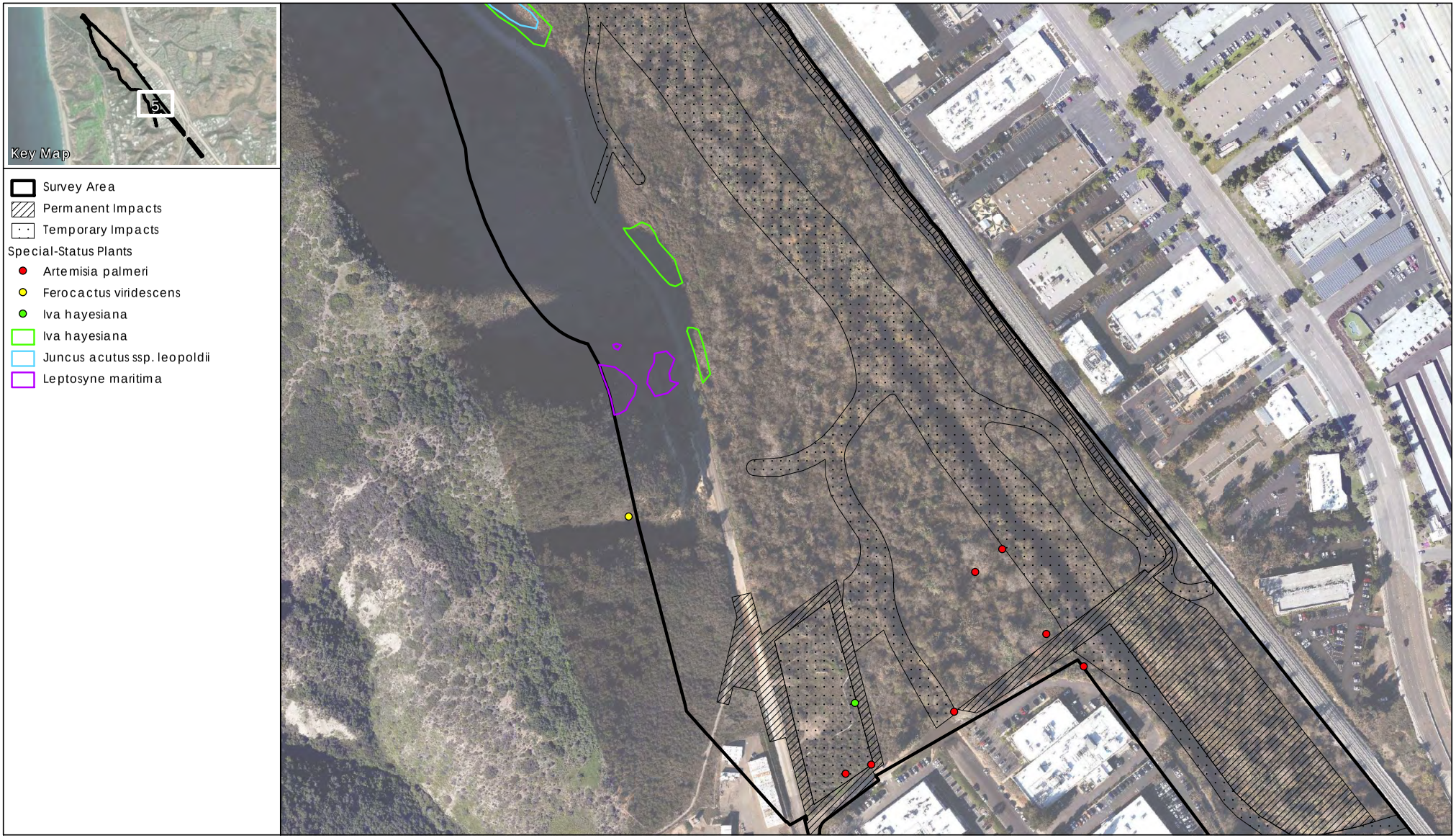


Figure 3-4e

Special-Status Plants

Los Peñasquitos Design Phase 1

Blackhawk Environmental

Figure 3-4f

Special-Status Plants

Los Peñasquitos Design Phase 1

Figure 3-4g

Special-Status Plants

Los Peñasquitos Design Phase 1

Blackhawk Environmental

N

0 200 Feet

ATTACHMENT B

Photo Pages

Blackhawk Environmental

Photo 1: An overview of the coastal sage scrub, chaparral, and marsh habitats looking east/southeast from the northwest edge of the Project site.

Photo 2: South Coast branching phacelia observed near blue elderberry series within the Project site.

Photo 3: Juncus acutus ssp. leopoldii observed in marshland habitat within the Project site.

Photo 4: Quercus dumosa and Pinus torreyana observed along a slope within the Project site.

Photo 5: Ferocactus viridescens in coastal sage scrub within the Project site and an overview of the Phase 1 salt marsh in the background.

Photo 6: Coastal sage scrub slope and salt marsh habitat below within the Project site.

Photo 7: Corethrogyne filaginifolia var. linifolia in coastal sage scrub within the Project site.

Photo 8: Erysimum ammophilum on the Project site and Phase 1 salt marsh in the background.

Photo 9: Leptosyne maritima in coastal sage scrub within the Project site and southern arroyo willow riparian forest in the background.

Photo 10: Lycium californicum observed within the Project site.

Photo 11: Suaeda taxifolia observed in non-degraded coastal salt marsh within the northern portion of the Project site.

Photo 12: Iva hayesiana observed within marshland habitat on the Project site.

Photo 13: A large stand of Iva hayesiana in its marshland habitat on the Project site.

Photo 14: Artemisia palmeri observed in dense coastal sage scrub within the Project site.

Photo 15: Artemisia palmeri in moist coastal sage scrub and riparian habitat on the Project site.

Photo 16: Heterotheca sessiflora ssp. sessiflora observed in open coastal sage scrub within the Project site.

Photo 17: Heterotheca sessiflora ssp. sessiflora and its open habitat preference adjacent to the northern portion of the Project site.

Photo 18: Corethrogyne filaginifolia var. linifolia observed within the Project site.

Photo 19: Corethrogyne filaginifolia var. linifolia in coastal sage scrub habitat on the Project site.

Photo 20: Phacelia ramosissima var. austrolitoralis on the Project site.

Photo 21: Phacelia ramosissima var. austrolitoralis in coastal sage scrub on the Project site.

ATTACHMENT C

Observed Plant Species List

Blackhawk Environmental

Plant Species Observed within the Phase I BSA

Scientific Name	Common Name
FERNS	
AZOLLACEAE	Mosquito Fern Family
Azolla filiculoides	Mosquito fern
PTERIDACEAE	Brake Family
Adiantum capillus-veneris	Southern maidenhair
Pentagramma triangularis ssp. maxonii	Maxon's silverback fern
Pentagramma triangularis ssp. triangularis	California goldback fern

GYMNOSPERMS	
PINACEAE	Pine Family
Pinus halapensis	Aleppo pine *
Pinus torreyana	Torrey pine ^

MAGNOLIDS	
LAURACEAE	Laurel Family
Cinnamomum camphora	Camphor tree
SAURURACEAE	Lizard-Tail Family
Anemopsis californica	Yerba mansa

EUDICOTS	
ADOXACEAE	Adoxa Family
Sambucus nigra ssp. caerulea	Blue elderberry
AIZOACEAE	Fig-Marigold Family
Carpobrotus edulis	Hottentot-fig *
Mesembryanthemum crystallinum	Crystalline iceplant *
Mesembryanthemum nodiflorum	Slender-leaf iceplant *
Sesuvium verrucosum	Western sea purslane
AMARANTHACEAE	Amaranth Family
Amaranthus albus	Pigweed amaranth *
ANACARDIACEAE	Sumac Family
Malosma laurina	Laurel sumac
Rhus integrifolia	Lemonadeberry
Schinus molle	Peruvian pepper tree *
Schinus terebinthifolius	Brazilian pepper tree *
Searsia lancea	African sumac *
Toxicodendron diversilobum	Poison oak
APIACEAE	Carrot Family

Anthriscus caucalis	Bur chervil *
Apiastrum angustifolium	Wild celery
Apium graveolens	Common celery *
Conium maculatum	Poison hemlock *
Daucus pusillus	Rattlesnake weed
Foeniculum vulgare	Sweet fennel *
APOCYNACEAE	Dogbane Family
Nerium oleander	Oleander *
Vinca major	Greater periwinkle *
ARALIACEAE	Ginseng Family
Hedera helix	English ivy *
Hydrocotyle umbellata	Manyflower marshpennywort
ASPARAGACEAE	Asparagus Family
Asparagus officinalis ssp. *officinalis*	Garden asparagus *
ASTERACEAE	Aster - Daisy - Composite Family
Acourtia microcephala	Sacapellote
Ambrosia psilostachya	Western ragweed
Amblyopappus pusillus	Pineapple-weed *
Anthemis cotula	Stinking chamomile *
Artemisia californica	California sagebrush
Artemisia douglasiana	Douglas mugwort
Artemisia dracunculus	Tarragon
Artemisia palmeri (CRPR 4.2)	San Diego sagewort +
Baccharis pilularis	Coyote brush
Baccharis salicifolia	Mule fat
Baccharis salicina	Willow baccharis
Baccharis sarothroides	Broom baccharis
Brickellia californica	California brickellbush
Carduus pycnocephalus	Italian thistle *
Centaurea melitensis	Tocalote *
Chaenactis glabriuscula var. *glabriuscula*	Yellow pincushion
Cirsium occidentale var. *californicum*	California thistle
Corethrogyne filaginifolia var. *linifolia* (CRPR 1B.1)	Del Mar sand-aster + ^
Cotula coronopifolia	African brass-buttons *
Deinandra fasciculata	Clustered tarweed
Delairea odorata	Cape ivy *
Dittrichia graveolens	Stinkwort *
Encelia californica	California encelia
Erigeron bonariensis	Flax-leaf fleabane *
Erigeron canadensis	Horseweed

Erigeron foliosus var. *foliosus*	Leafy daisy
Eriophyllum confertiflorum	Golden-yarrow
Gamochaeta pensylvanica	Pennsylvania everlasting *
Glebionis coronaria	Crown daisy *
Hazardia squarrosa	Saw-toothed goldenbush
Hedypnois cretica	Crete weed *
Helminthotheca echioides	Bristly ox-tongue *
Heterotheca grandiflora	Telegraph weed
Heterotheca sessiflora ssp. sessiflora (CRPR 1B.1)	Sessileflower false goldenaster +
Hypochaeris glabra	Smooth cat's ear *
Isocoma menziesii var. sedoides	Coastal goldenbush
Isocoma menziesii var. vernonoides	Coastal goldenbush
Iva hayesiana (CRPR 2B.2)	San Diego marsh-elder +
Jaumea carnosa	Fleshy jaumea
Lactuca serriola	Bitter lettuce *
Lasthenia coronaria	Royal goldfields
Lasthenia gracilis	Needle goldfields
Leptosyne maritima (CRPR 2B.2)	Sea dahlia +
Logfia filaginoides	California cottonrose
Logfia gallica	Narrow-leaf cottonrose *
Oncosiphon piluliferum	Stinknet *
Osmadenia tenella	Osmadenia
Pluchea odorata var. *odorata*	Salt marsh fleabane
Pseudognaphalium beneolens	Fragrant everlasting
Pseudognaphalium bioletti	Bicolor cudweed
Pseudognaphalium californicum	California everlasting
Pseudognaphalium luteoalbum	Fragrant everlasting cudweed *
Pseudognaphalium stramineum	Cotton-batting plant
Psilocarphus brevissimus	Woolly marbles
Senecio vulgaris	Common groundsel *
Silybum marianum	Milk thistle *
Sonchus asper	Prickly sowthistle *
Sonchus oleraceus	Common sowthistle *
Stephanomeria exigua	Small wreath-plant
Stephanomeria virgata ssp. *pleurocarpa*	Tall wreath-plant
Stylocline gnaphalioides	Everlasting nest-straw
Uropappus lindleyi	Silver puffs
Xanthium strumarium	Cocklebur
BETULACEAE	Birch Family
Alnus rhombifolia	White alder

BIGNONIACEAE	Bignonia Family
Catalpa bignoniodes	Southern catalpa *
BORAGINACEAE	Borage Family
Amsinckia intermedia	Rancher's fiddleneck
Cryptantha clevelandii var. florosa	Coastal cryptantha
Cryptantha intermedia	Common cryptantha
Echium candicans	Pride of Madeira *
Eucrypta chrysanthemifolia var. *chrysanthemifolia*	Common eucrypta
Heliotropium curassavicum	Salt heliotrope
Phacelia cicutaria	Caterpillar phacelia
Phacelia distans	Wild heliotrope
Phacelia ramosissima var. *austrolitoralis* (CRPR 3.2)	South coast branching phacelia +
Plagiobothrys collinus var. *gracilis*	San Diego popcornflower
Pholistoma auritum var. *auritum*	Fiesta flower
BRASSICACEAE	Mustard Family
Brassica nigra	Black mustard *
Erysimum ammophilum (CRPR 1B.2)	Coast wallflower + ^
Hirschfeldia incana	Short-pod mustard *
Lepidium didymum	Lesser wart-cress *
Lepidium draba	Whitetop *
Lepidium latifolium	Broad leaved pepper grass *
Lepidium nitidum	Shining peppergrass
Nasturtium officinale	Watercress
Raphanus sativus	Wild radish *
Sisymbrium irio	London rocket *
Sisymbrium orientale	Hare's ear cabbage *
CACTACEAE	Cactus Family
Cylindropuntia prolifera	Coast cholla
Ferocactus viridescens (CRPR 2B.1)	San Diego barrel cactus + ^
Opuntia ficus-indica	Mission prickly-pear *
Opuntia littoralis	Coast prickly pear
CAMPANULACEAE	Bellflower Family
Triodanis biflora	Venus' looking glass
CAPRIFOLIACEAE	Honeysuckle Family
Lonicera japonica	Japanese honeysuckle *
Lonicera subspicata	Johnston's honeysuckle
CARYOPHYLLACEAE	Pink Family
Cardionema ramosissimum	Sand mat
Silene gallica	Windmill pink *
Silene laciniata ssp. *laciniata*	Southern pink

Spergularia bocconi	Boccone's sand spurrey *
Spergularia villosa	Villous sand-spurrey *
CHENOPODIACEAE	Goosefoot Family
Arthrocnemum subterminale	Glasswort
Atriplex lentiformis	Big saltbush
Atriplex prostrata	Spearscale *
Atriplex semibaccata	Australian saltbush *
Bassia hyssopifolia	Five horn bassia *
Chenopodium album	Lamb's quarters *
Chenopodium berlandieri	Pit-seed goosefoot
Chenopodium californicum	California goosefoot
Chenopodium murale	Nettle-leaf goosefoot *
Dysphania ambrosioides	Mexican tea
Salicornia depressa	Virginia glasswort
Salicornia pacifica	Pacific pickleweed
Salsola tragus	Russian thistle *
Suaeda taxifolia (CRPR 4.2)	Woolly seablite +
CISTACEAE	Rock Rose Family
Cistus incanus	Hairy rockrose *
CLEOMACEAE	Spiderflower Family
Peritoma arborea	Bladderpod
CONVOLVULACEAE	Morning-Glory Family
Calystegia macrostegia ssp. tenuifolia	Narrow-leaf morning-glory
Cuscuta californica	California dodder
Cuscuta salina	Saltmarsh dodder
Cressa truxillensis	Alkali weed
CRASSULACEAE	Stonecrop family
Crassula connata	Pygmyweed
Dudleya edulis	Ladies' fingers
Dudleya lanceolata	Lanceleaf liveforever
Dudleya pulverulenta	Chalk dudleya
CUCURBITACEAE	Gourd Family
Cucurbita foetidissima	Coyote melon
Marah macrocarpus	Wild cucumber
ERICACEAE	Heath Family
Arbutus unedo	Strawberry tree *
EUPHORBIACEAE	Spurge Family
Croton californicus	California croton
Croton setiger	Doveweed
Euphorbia maculata	Spotted spurge *

Euphorbia peplus	Petty spurge *
Ricinus communis	Castor bean *
FABACEAE	Pea Family
Acacia cyclops	Coastal wattle *
Acmispon glaber	Deerweed
Acmispon strigosus	Strigose lotus
Amorpha fruticosa	False indigo
Astragalus trichopodus var. *lonchus*	Ocean locoweed
Lotus corniculatus	Bird's foot trefoil *
Lupinus bicolor	Miniature lupine
Lupinus hirsutissimus	Stinging lupine
Lupinus sparsiflorus	Coulter's lupine
Lupinis succulentus	Arroyo lupine
Lupinus truncatus	Collar lupine
Medicago polymorpha	Bur clover *
Melilotis albus	White sweetclover *
Melilotus indicus	Indian sweetclover
FAGACEAE	Oak Family
Castanea sativa	Sweet chestnut *
Quercus agrifolia	Coast live oak
Quercus dumosa (CRPR 1B.1)	Nuttall's scrub oak +
FRANKENIACEAE	Frankenia Family
Frankenia salina	Alkali-heath
GENTIANACEAE	Gentian Family
Zeltnera venusta	Charming centaury
GERANIACEAE	Geranium Family
Erodium botrys	Long-beaked filaree/storksbill *
Erodium cicutarium	Red-stem filarre/storksbill *
Erodium moschatum	White-stem filaree/storksbill *
Geranium dissectum	Cut-leaf geranium *
GROSSULARIACEAE	Gooseberry Family
Ribes speciosum	Fuchsia-flowered gooseberry
HAMAMELIDACEAE	Witch-Hazel Family
Liquidambar styraciflua	Sweet gum *
LAMIACEAE	Mint Family
Marrubium vulgare	Horehound *
Salvia apiana	White sage
Salvia mellifera	Black sage
LYTHRACEAE	Loosestrife Family
Lythrum hyssopifolia	Grass poly *

MALVACEAE	Mallow Family
Malacothamnus fasciculatus	Bush mallow
Malvella leprosa	Alkali mallow
MONTIACEAE	Montia Family
Claytonia parviflora	Miner's lettuce
MORACEAE	Mulberry Family
Ficus carica	Edible fig *
MYRSINACEAE	Myrsine Family
Lysimachia arvensis	Scarlet pimpernel *
MYRTACEAE	Myrtle Family
Callistemon citrinus	Crimson bottlebrush *
Eucalyptus globulus	Blue gum *
Eucalyptus polyanthemos	Silver dollar gum *
NYCTAGINACEAE	Four O' Clock Family
Mirabilis laevis var. *crassifolia*	Coastal wishbone plant
OLEACEAE	Olive Family
Fraxinus latifolia	Oregon ash
ONAGRACEAE	Evening-primrose Family
Camissoniopsis bistorta	California sun cup
Camissoniopsis hirtella	Field sun cup
Clarkia epilobioides	Canyon clarkia
Epilobium canum	California fuchsia
Epilobium ciliatum	Slender willow herb
Eulobus californica	California primrose
Oenothera elata ssp. *hookeri*	Hooker's evening-primrose
OROBANCHACEAE	Broom-Rape Family
Castilleja affinis	Coast Indian paintbrush
Castilleja exserta	Owl's clover
Catilleja foliolosa	Woolly Indian paintbrush
Cordylanthus rigidus	Rigid bird's beak
OXALIDACEAE	Oxalis Family
Oxalis pes-caprae	Bermuda-buttercup *
PAEONIACEAE	Peony Family
Paeonia californica	California peony
PAPAVERACEAE	Poppy Family
Dendromecon rigida	Bush poppy
Eschscholzia californica	California poppy
Platystemon californicus	Cream cups
PHRYMACEAE	Lopseed Family
Erythranthe guttata	Yellow monkey flower

Mimulus aurantiacus	Bush monkeyflower
PHYTOLACCACEAE	Pokeweed Family
Phytolacca americana	American pokeweed *
PLANTAGINACEAE	Plantain Family
Antirrhinum coulterianum	Coulter's snapdragon
Antirrhinum nuttallianum ssp. *nuttallianum*	Nuttall's snapdragon
Antirrhinum nuttallianum ssp. *subsessile*	Big-gland Nuttall's snapdragon
Collinsia concolor	Chinese houses
Keckiella cordifolia	Heart leaved penstemon
Plantago erecta	Dot-seed plantain
Plantago lanceolata	English plantain *
Plantago major	Common plantain *
Plantago ovata	Woolly plantain
PLATANACEAE	Sycamore Family
Platanus racemosa	Western sycamore
PLUMBAGINACEAE	Leadwort Family
Limonium californicum	Western marsh-rosemary
POLEMONIACEAE	Phlox Family
Linanthus dianthiflorus	Fringed linanthus
Navarretia hamata	Hooked navarretia
POLYGONACEAE	Buckwheat Family
Eriogonum elongatum var. *elongatum*	Tall buckwheat
Eriogonum fasciculatum	California buckwheat
Lastarriaea coriacea	Leather spineflower
Persicaria amphibia	Water smartweed
Persicaria punctata	Dotted smartweed
Polygonum aviculare	Prostrate knotweed *
Pterostegia drymarioides	Granny's hairnet
Rumex californicus	California dock
Rumex conglomeratus	Clustered dock *
Rumex crispus	Curly dock *
PORTULACACEAE	Purslane Family
Portulaca oleracea	Common purslane *
RANUNCULACEAE	Buttercup Family
Clematis ligusticifolia	Yerba de chiva
Clematis pauciflora	Few flowered clematis
Delphinium cardinale	Scarlet larkspur
Delphinium parryi	Blue larkspur
RESEDACEAE	Mignonette Family
Reseda luteola	Dyer's rocket *

RHAMNACEAE	Buckthorn Family
Ceanothus megacarpus	Big pod ceanothus
Rhamnus crocea	Spiny redberry
Rhamnus ilicifolia	Holly-leaf redberry
ROSACEAE	Rose Family
Cercocarpus betuloides	Mountain mahogany
Heteromeles arbutifolia	Toyon
Pyracantha sp.	Firethorn *
Rubus ursinus	California blackberry
RUBIACEAE	Coffee Family
Galium angustifolium ssp. angustifolium	Narrow-leaf bedstraw
Galium aparine	Common bedstraw
Galium nuttallii	San Diego bedstraw
RUTACEAE	Rue Family
Cneoridium dumosum	Spicebush
SALICACEAE	Willow Family
Salix exigua	Sand bar willow
Salix gooddingii	Goodding's black willow
Salix laevigata	Red willow
Salix lasiolepis	Arroyo willow
SAPINDACEAE	Soapberry Family
Koelreuteria bipinnata	Goldenrain tree *
SCROPHULARIACEAE	Figwort Family
Myoporum acuminatum	Strichnine bush *
Myoporum laetum	Lollypop tree *
Scrophularia californica	California figwort
Verbascum thapsus	Common mullein *
SOLANACEAE	Nightshade Family
Datura wrightii	Western jimson weed
Lycium californicum (CRPR 4.2)	California box thorn +
Nicotiana glauca	Tree tobacco *
Solanum americanum	White nightshade *
Solanum douglasii	Douglas's nightshade
Solanum parishii	Parish's nightshade
TAMARICACEAE	Tamarisk Family
Tamarix ramosissima	Tamarisk *
THEOPHRASTACEAE	Theophrasta Family
Samolus parviflorus	Water pimpernel
TROPAEOLACEAE	Nasturtium Family
Tropaeolum majus	Garden nasturtium *

ULMACEAE	Elm Family
Ulmus parvifolia	Chinese elm *
URTICACEAE	Nettle Family
Urtica dioica ssp. holosericea	Stinging nettle
Urtica urens	Dwarf nettle *
VERBENACEAE	Verbena Family
Verbena lasiostachys var. lasiostachys	Western vervain

MONOCOTS	
AGAVACEAE	Agave Family
Hesperoyucca whipplei	Chaparral yucca
Yucca schidigera	Mohave yucca
ALISMATACEAE	Water Plantain Family
Alisma triviale	Water plantain
AMARYLLIDACEAE	Amaryllis Family
Amaryllis belladonna	Naked lady *
ARECACEAE	Palm Family
Phoenix canariensis	Canary Island date palm *
Washingtonia robusta	Mexican fan palm *
ASPHODELACEAE	Asphodel Family
Asphodelus fistulosus	Hollow-stem asphodel *
COMMELINACEAE	Spiderwort Family
Commelina benghalensis	Dayflower *
CYPERACAEA	Sedge Family
Cyperus eragrostis	Tall flatsedge
Eleocharis macrostachya	Pale spike-rush
Schoenoplectus acutus	Common tule
Schoenoplectus americanus	Alkali bulrush
Schoenoplectus californicus	California bulrush
Bolboschoenus maritimus	Prairie bulrush
IRIDACEAE	Iris Family
Iris pseudacorus	Pale yellow iris *
Sisyrinchium bellum	Blue-eyed-grass
JUNCACEAE	Rush Family
Juncus acutus ssp. *leopoldii* (CRPR 4.2)	Southwestern spiny rush +
Juncus bufonius	Toad rush
Juncus mexicanus	Mexican rush
Juncus xiphioides	Iris-leaf rush
LILIACEAE	Lily Family

Calochortus splendens	Splendid mariposa lily
Calochortus weedii var. weedii	Weed's mariposa lily
MUSACEAE	Banana Family
Musa sp.	Banana *
POACEAE	Grass Family
Agrostris stolonifera	Creeping bentgrass *
Arundo donax	Giant reed *
Avena barbata	Slender wild oat *
Avena fatua	Wild oat *
Brachypodium distachyon	Purple false-brome *
Bromus diandrus	Ripgut grass *
Bromus hordeaceus	Soft chess *
Bromus madritensis ssp. *rubens*	Compact brome *
Cortaderia selloana	Pampas grass *
Cynodon dactylon	Bermuda grass *
Distichlic littoralis	Shore grass
Distichlis spicata	Saltgrass
Elymus condensatus	Giant wild-rye
Elymus ponticus	Tall wheatgrass *
Elymus triticoides	Beardless wild-rye
Ehrharta erecta	Panic veldt grass *
Ehrharta longiflora	Longflowered veldtgrass *
Festuca myuros	Rat tail fescue *
Festuca perennis	Perennial ryegrass *
Hordeum murinum ssp. *glaucum*	Glaucous barley *
Lamarckia aurea	Golden-top *
Melica imperfecta	Little California melica
Muhlenbergia rigens	Deergrass
Pennisetum setaceum	African fountain grass *
Poa annua	Annual ryegrass *
Polypogon monspeliensis	Annual beard grass *
Schismus barbatus	Mediterranean schismus *
Setaria pumila	Yellow bristlegrass
Stipa lepida	Foothill needlegrass
Stipa pulchra	Purple needlegrass
Stipa miliacea	Smilo grass *
Stipa tenuissima	Mexican feather grass *
Festuca myuros	Rattail fescue *
THEMIDACEAE	Brodiaea Family
Bloomeria crocea	Common goldenstar

Dichelostemma capitatum	Blue dicks
TYPHACEAE	Cattail Family
Typha domingensis	Southern cattail
Typha latifolia	Broad-leaf cattail

+ denotes special-status species
* denotes non-native species
^ denotes City of San Diego MSCP covered species

Appendix G: Aquatic Resources Delineation Report

Los Peñasquitos Lagoon Restoration Project – Phase 1, San Diego, San Diego County, CA
(Rocks Biological Consulting, 2022)

ROCKS
BIOLOGICAL CONSULTING



LOS PEÑASQUITOS LAGOON RESTORATION PROJECT - PHASE I
AQUATIC RESOURCES DELINEATION REPORT

San Diego, California

August 1, 2022

Prepared for:
City of San Diego
Engineering and Capital Projects Department
525 B Street, Suite 750, MS 908A
San Diego, CA 92101

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Appendices

1 Introduction

On behalf of the City of San Diego Engineering and Capital Projects Department, Rocks Biological Consulting (RBC) conducted a formal aquatic resources delineation for the Los Peñasquitos Lagoon Restoration Project - Phase I review area, composed of 243.16 acres (Figure 1), to identify areas that may be considered jurisdictional under the U.S. Army Corps of Engineers (Corps) pursuant to Section 404 of the Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act (RHA); the Regional Water Quality Control Board (RWQCB) pursuant to Section 401 of the CWA and the Porter-Cologne Water Quality Control Act; and the California Department of Fish and Wildlife (CDFW) pursuant to Section 1602 of the California Fish and Game Code. The information provided in this aquatic resources delineation report (ARDR) is necessary to define the presence or absence of aquatic resources within the review area. This ARDR can also be used by the agencies to inform the jurisidictional status of delineated aquatic resources and by the applicant and agencies to assess conformance with state and federal regulations and to estimate potential impacts and associated permitting requirements. Furthermore, the information contained in this report is in compliance with the Corps Los Angeles District's *Minimum Standards for Acceptance of Aquatic Resources Delineation Reports* (Minimum Standards; Corps 2017). Appendix A provides a checklist to ensure compliance with the Minimum Standards.

This ARDR does not include a request for the Corps to complete a Jurisdictional Determination (JD). The City may request a separate Preliminary JD (PJD) or Approved JD (AJD).

2 Site Description, Landscape Setting

2.1 Location

The review area is generally located west of Interstate (I)-5 and I-805, north of I-5 and Genesee Avenue, east of North Torrey Pines Road, and south of Carmel Valley Road, within the City of San Diego, San Diego County, California (Figure 1). The review area is generally located within Torrey Pines State Natural Reserve and bounded by commercial development/developed roads and undeveloped/preserved land to the east and west; commercial development/developed roads to the south; and undeveloped/preserved land to the north, except for a small portion of the review area that abuts North Torrey Pines Road in the far northwestern corner. The latitude and longitude of the approximate center of the review area is 32.915129, -117.239349. The review area sits on Township 14 South, Range 3 West; Township 14 South, Range 4 West; Township 15 South, Range 3 West of Pueblos Lands of San Diego land grant (unsectioned) within the Del Mar 7.5-minute quadrangle, as mapped by the U.S. Geological Survey (USGS; Figure 2).

2.2 Topography

The review area elevation ranges from approximately 4 to 196 feet above mean sea level (amsl). (Figure 2). Peñasquitos Creek/Lagoon, Carroll Canyon Creek, the small drainages in the western portion of the review area, and one small drainage in the eastern portion of the review area generally trend south/southeast to north/northwest; the roadside drainage in the southern portion of the review area trends west to east; and one small drainage in the eastern portion of the review area trends northeast to southwest following a gradual decrease in elevation in the same direction.

2.3 Watershed

The review area is within the San Diego Hydrologic Unit Code (HUC) 8 (18070304), Poway Creek HUC 10 (1807030404), Carmel Valley HUC 12 (180703040403) and Carroll Canyon HUC 12 (180703040401) (Figure 2). The San Diego HUC 8 encompasses approximately 2,499 square miles, the Poway Creek HUC 10 encompasses approximately 94 square miles, the Carmel Valley HUC 12 encompasses approximately 18 square miles, and the Carroll Canyon HUC 12 encompasses approximately 18 square miles (USGS 2020; UCD SIG n.d.).

In addition to the watersheds defined by the USGS and commonly used by the Corps, the RWQCB also defines watershed boundaries by Hydrologic Units (HUs). The review area is within the San Diego Basin, the Penasquitos HU, and the Miramar Reservoir Hydrologic Subarea (HA) (San Diego RWQCB [SDRWQCB] 2020; Figure 3).

3 Methods

3.1 Pre-Field Review

Prior to the on-site delineation, field maps were created using a Geographic Information System (GIS) and a color aerial photograph at a 1:200 scale. RBC staff also reviewed USGS National Hydrography Dataset (NHD) and topography data (Figure 2), U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) data (Figure 4), and Natural Resources Conservation Service (NRCS) soils data (Figure 5) to further determine the potential locations of aquatic resources within the review area. RBC also utilized Google Earth to assess current and historic presence or absence of flows and/or ponding in the review area (Google Earth Pro 2021). RBC also reviewed the *Draft Biological Technical Report, Sorrento/Los Peñasquitos Waterways Restoration and Improvement Program, City of San Diego, San Diego County, California*, prepared by Environmental Science Associates (ESA) and dated June 21, 2016 (ESA 2016) and the *Jurisdictional Delineation Report, Los Penasquitos Lagoon Restoration Project – Phase 1, San Diego, San Diego County, CA*, prepared by Blackhawk Environmental and dated September 21, 2020 (Blackhawk Environmental 2020).

3.2 On-Site Delineation and Mapping

RBC regulatory specialists/biologists conducted aquatic resources delineation field visits on January 11, 12, and 20, 2022. Field conditions during these field visits are provided below in Table 1.

Table 1. Field Conditions

Date	Survey Time Start – End	Temperature (°F) Start – End	Wind Speed Range (miles per hour) Start – End	Cloud Cover (%) Start – End	Personnel
1/11/2022	0745 – 1615	55 – 59	0 to 2 – 0 to 2	5 – 10	BB, IH, KW, SK, SS
1/12/2022	0700 – 1545	52 – 68	0 to 3 – 2 to 5	70 – 20 (hazy)	BB, KW, SK
1/20/2022	0900 – 1545	55 – 64	0 to 2 – 0 to 2	0 – 0	KW, SK

BB = Brenda Bennett, IH = Ian Hirschler, KW = Kelsey Woldt, SK = Sarah Krejca, SS = Shanti Santulli

Figure 1 and Figures 6A – 6C depict the 243.16-acre review area.

Areas with depressions, drainage patterns, and/or wetland vegetation within the review area were evaluated, with focus on the presence of defined channels and/or wetland vegetation, soils, and hydrology.

While in the field, potential aquatic resources were recorded using a hand-held Global Positioning System (GPS) unit with a level of accuracy ranging from 12 to 30 feet. RBC staff refined the data using aerial photographs and topographic maps with one-foot contours to ensure accuracy.

All figures generated for this ARDR follow the Corps' Updated Map and Drawing Standards for the South Pacific Division Regulatory Program (Corps 2016).

The below subsections provide the aquatic resources delineation methods used per agency; Appendix B provides additional details regarding the agencies' applicable regulations and guidance associated with this ARDR.

3.2.1 Corps

Tidal and Navigable Waters Delineation

The mean high water (MHW) generally demarcates the landward boundary of Corps jurisdiction under Section 10 of the RHA. For those areas within the tidal zone, the high tide line (HTL) generally demarcates the landward, tidal boundary for Corps jurisdiction under Section 404 of the CWA. In lieu of the HTL, the maximum predicted annual tide is used to determine the tidal boundary for CWA Section 404 jurisdiction. RBC staff used the NOAA Tide Predictions website to determine the maximum predicted annual tide and the MHW at the closest station to the review area (NOAA 2022). Please note, however, the Corps may also determine the extent of navigable tidal waters based on if the waters in question are presently used, have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.

The Corps' Los Angeles District may deem waters "Traditional Navigable Waters" (TNWs) under Section 404 of the CWA and/or "Navigable Waters" under Section 10 of the RHA based on previous studies and/or court rulings (Corps n.d.). All of the above methods have been incorporated into this report to estimate anticipated Corps tidal and navigable waters of the U.S.

Ordinary High Water Mark Delineation

Aquatic resources with a defined ordinary high water mark (OHWM) would be considered potential non-wetland waters of the U.S. Corps regulations at 33 Code of Federal Regulations (CFR) 329.11 define an OHWM as "the line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank; shelving; changes in the character of soil; destruction of terrestrial vegetation; the presence of litter or debris; or other appropriate means that consider the characteristics of the surrounding areas" (51 Federal Register [FR] 41251, November 13, 1986). RBC staff used guidance provided in *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (OHWM Field Guide; Corps 2008a) and Regulatory Guidance Letter (RGL) 05-05 to estimate the extent of an OHWM in the field for non-tidal areas. For each feature within non-tidal areas exhibiting the potential presence of an OHWM, RBC completed a 2010 Arid West Ephemeral

and Intermittent Streams OHWM Datasheet following the guidance provided in the *Updated Datasheet for the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (OHWM Datasheet; Corps 2010). Per the 2010 OHWM Datasheet, common indicators of an OHWM include a break in slope (i.e., abrupt cut in bank slope created by hydrogeomorphic processes across the landscape), changes in average sediment texture between floodplain units (i.e., low-flow, active floodplain, low terrace), and changes in vegetation species and/or cover between floodplain units.

Wetland Delineation

Field staff examined potential wetland waters of the U.S. using the routine determination methods set forth in Part IV, Section D, Subsection 2 of the Corps 1987 *Wetland Delineation Manual* (Wetland Manual; Environmental Laboratory 1987) and the 2008 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region Version 2.0* (Arid West Supplement; Corps 2008b). Field staff followed Steps 18 through 21 in the Wetland Manual for "Areas Greater Than 5 Acres in Size," which includes establishing the number and location of transects, to determine the wetland/non-wetland boundary (Environmental Laboratory 1987). Areas that met the three parameters per the Arid West Supplement (i.e., hydrophytic vegetation, hydric soils, and wetland hydrology, following methods set forth in the Wetland Manual and Arid West Supplement) were considered wetland waters of the U.S. RBC staff based wetland plant indicator status (i.e., Obligate [OBL], occurs 99+% in wetlands; Facultative Wetland [FACW], occurs 67-99% in wetlands; Facultative [FAC], occurs 34-66% in wetlands; Facultative Upland [FACU], occurs 1-33% in wetlands; Upland [UPL], occurs 99+% in uplands; and Not Listed [NL], considered UPL for wetland delineation purposes) on the *National Wetland Plant List* (NWPL; Corps 2018) and hydric soils indicators on *Field Indicators of Hydric Soils in the United States, Version 8.2* (NRCS 2018a). Soil chromas were identified in the field according to *Munsell Soil-Color Charts with Genuine Munsell Color Chips* (Munsell Color 2015) and per the Wetland Manual and Arid West Supplement. Plants were identified according to *The Jepson Manual: Vascular Plants of California, 2nd edition* (Baldwin et al. 2012) and nomenclature follows Jepson eFlora (Jepson Flora Project 2022).

3.2.2 RWQCB

Ordinary High Water Mark Delineation

The State Water Resources Control Board (SWRCB) and RWQCBs do not have regulations or guidance on defining the extent of non-wetland waters of the State. As such, field staff identified the lateral limits of potential non-wetland waters of the State using the same methods for determining an OHWM within non-tidal areas per the Corps as described in Section 3.2.1 as they have generally been considered coincident. Field staff also used the same methods for determining the extent of non-wetland waters of the State within the tidal zone per the Corps as described in Section 3.2.1 for determining the landward, tidal boundary for Corps jurisdiction under Section 404 of the CWA.

Wetland Delineation

The State Policy for Water Quality Control: State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (the Procedures; SWRCB 2021) defines wetland waters of the State. The Procedures were adopted on April 2, 2019, went into effect on May 28,

2020, and were revised on April 6, 2021. As detailed in the Procedures, the SWRCB and RWQCBs define a wetland as follows: “An area is wetland if, under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area’s vegetation is dominated by hydrophytes or the area lacks vegetation” (SWRCB 2021).

The Procedures provide that RWQCBs shall rely on a wetland delineation from a final ARDR verified by the Corps to determine the extent of wetland waters of the State. If any potential wetland areas have not been delineated in a final ARDR verified by the Corps, the limits of such potential wetland waters of the State shall be identified using the same wetland delineation methods per the Corps as described in Section 3.2.1, except that a lack of vegetation (i.e., less than 5 percent areal coverage of plants during the peak of the growing season) does not preclude an area from meeting the definition of a wetland waters of the State (SWRCB 2021).

3.2.3 CDFW

Lake, Streambed, and Associated Riparian and Wetland Habitat Delineation

CDFW jurisdiction relies on the presence of a lake and/or streambed and associated riparian or wetland habitat. Lakes include “natural lakes or man-made reservoirs” (14 California Code of Regulations [CCR] § 1.56). CDFW regulations define a streambed as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supporting fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports riparian vegetation" (14 CCR § 1.72). The 1987 *Rutherford v. State of California* (188 Cal. App. 3d 1268) decisionfurther provided that a streambed is the “channel of a water course; the depression between the banks worn by the regular and usual flow of the water.” A streambed includes the “[a]rea extending between the opposing banks measured from the foot of the banks from the top of the water at its ordinary stage, including sand bars which may exist between the foot of said banks…” (188 Cal. App. 3d 1268). The bank is defined as “the slope or elevation of land that bounds the bed of the stream in a permanent or long-standing way, and that confines the stream water up to its highest level” (*The People v. Phillip Wright Osborn*, 116 Cal. App. 4th 764).

Riparian habitat refers to vegetation and habitat associated with a stream. CDFW-jurisdictional habitat includes all riparian shrub or tree canopy that may extend beyond the banks of a stream. Isolated riparian habitat (i.e., where riparian vegetation does not appear associated with an ephemeral wash) is not considered CDFW-jurisdictional.

CDFW follows the USFWS wetland definition and classification system, which defines a wetland as transitional land between terrestrial and aquatic systems having one or more of the following attributes: “(1) at least periodically, the land supports predominantly hydrophytes; (2) the substrate is predominantly undrained hydric soil; and (3) the substrate is non-soil and is saturated with water or covered by shallow water at some time during the growing season of each year” (USFWS 1979). A wetland is presumed when all three attributes are present; if less than three attributes are present the presumption of a wetland must be supported by “the demonstrable use of wetland areas by wetland associated fish or wildlife resources, related biological activity, and wetland habitat values” (California Fish and Game Commission [CFGC] 1994).

Potential CDFW-jurisdictional wetland boundaries were determined based on the presence of wetland areas supported by a lake or streambed. Wetland delineation methods to determine the presence of one or more wetland attributes included the same methods per the Corps as described in Section 3.2.1.

Based on the above, potential CDFW-jurisdictional aquatic resources delineated included lakes and/or streambeds and their associated riparian and wetland habitats. Field staff delineated the lateral extent of potential CDFW jurisdiction to be "bank to bank" for a streambed or to the "dripline" of riparian habitat and/or wetland boundary, if present.

4 Site Alterations, Current and Past Land Use

RBC staff reviewed Google Earth Pro (Google Earth 2021), NetrOnline (2022), and the University of California – Santa Barbara (UCSB; UCSB n.d.) databases to assess historic and ongoing land uses within the review area. Based on a review of these databases, the concrete-lined extent of Carroll Canyon Creek (i.e., Non-Wetland Water [NWW-] 1B per Section 6 below) was constructed between 1964 and 1966 (NetrOnline 2022). Between 1966 and 1978, the northern extent of Carroll Canyon Creek and the southern extent of Peñasquitos Creek/Lagoon (i.e., NWW-Wetland (W-) 2A and NWW-2B) were channelized with development of land to the west and construction of I-5 (NetrOnline 2022). The remainder of Peñasquitos Creek/Lagoon appears to have occurred within its current location within the review area at least as far back as February 1932 (i.e., the earliest aerial image available) (UCSB n.d.). By 1941, development within Peñasquitos Creek/Lagoon had already occurred in the form of Highway 101 along the barrier beach and two railway alignments through the lagoon, which were completed in 1888 and 1925. Remnants of the detention ponds associated with the former Sorrento Wastewater Plant, which was active between 1941 and 1945 when Camp Callen was active, are still visible along the southern edge of the lagoon, adjacent to Marsh Trail. The berms of these former ponds are still present. Normal circumstances were assumed to be present within the review area.

The following sections provide additional details regarding site alterations and land use specific to on-site soils, hydrology, and vegetation based on available data and the site visit.

4.1 Soils

Based on the NRCS soils data map (Figure 5), nine soil map units, outlined below in Table 2, occur within the review area:

Table 2. Soils Mapped within Review Area

Soil Map Unit	Soil Series/Unit	Geomorphic Surface	Taxonomic Class	NRCS Hydric Status[1]
Chino silt loam, saline, 0 to 2 percent slopes	Chino	Alluvial fans	Fine-loamy, mixed, superactive, thermic Aquic Haploxerolls	Yes, Criteria 2[2]
Coastal beaches	Coastal beaches	Beaches	–	Yes, Criteria 3[3] and 4[4]

Soil Map Unit	Soil Series/Unit	Geomorphic Surface	Taxonomic Class	NRCS Hydric Status[1]
Corralitos loamy sand, 0 to 5 percent slopes	Corralitos	Alluvial fans	Mixed, thermic Typic Xeropsamments	Yes, Criteria 3[3]
Corralitos loamy sand, 5 to 9 percent slopes	Corralitos	Alluvial fans	Mixed, thermic Typic Xeropsamments	No
Huerhuero loam, 15 to 30 percent slopes, eroded	Huerhuero	Marine terraces	Fine, smectitic, thermic Typic Natrixeralfs	No
Made land	Made land	N/A	–	No
Salinas clay loam, 2 to 9 percent slopes	Salinas	Alluvial fans	Fine-loamy, mixed, superactive, thermic Pachic Haploxerolls	No
Terrace escarpments	Terrace escarpments	Terraces or Alluvial fans	–	No
Tidal flats	Tidal flats	Tidal flats	–	Yes, Criteria 4[4]

[1] Per NRCS's Soil Data Access (SDA) Hydric Soils List (NRCS n.d.)
[2] Criteria 2: This map unit contains "components in Aquic suborders, great groups, or subgroups, Albolls suborder, Historthels great group, Histoturbels great group, or Andic, Cumulic, Pachic, or Vitrandic subgroups that: A) Based on the range of characteristics for the soil series, will at least in part meet one or more Field Indicators of Hydric Soils in the United States, or B) Show evidence that the soil meets the definition of a hydric soil" (77 FR 12234).
[3] Criteria 3: This map unit contains "components that are frequently ponded for long duration or very long duration during the growing season that: A) Based on the range of characteristics for the soil series, will at least in part meet one or more Field Indicators of Hydric Soils in the United States, or B) Show evidence that the soil meets the definition of a hydric soil" (77 FR 12234).
[4] Criteria 4: This map unit contains "components that are frequently flooded for long duration or very long duration during the growing season that: A) Based on the range of characteristics for the soil series, will at least in part meet one or more Field Indicators of Hydric Soils in the United States, or B) Show evidence that the soils meet the definition of a hydric soil" (77 FR 12234).

The National Technical Committee for Hydric Soils defines hydric soils; *Changes in Hydric Soils Database Selection Criteria* (77 FR 12234) outlines the current four hydric soil criteria. The NRCS lists four soil map units within the review area as hydric (NRCS n.d.).

The soils outlined above in Table 2 are further described below per the USDA's Soil Survey of San Diego Area, California (USDA 1973), National Soil Survey Handbook (USDA 2019), and NRCS Official Soil Series Description and Series Classification database (NRCS 2018b):

Chino series – The Chino series consists of poorly to somewhat poorly drained soils with slow to very slow runoff and moderately slow permeability. These soils occur on basins and floodplains with slopes ranging from elevations of near sea level to 3,100 feet amsl. Chino soil is used primarily for grazing, and drained areas are used for growing irrigated truck and row crops.

Coastal beaches – Coastal beach soils occur as unvegetated, gravelly and sandy beaches along the Pacific Ocean. These soils are often covered with water during high tide and stormy periods.

Corralitos series – The Corralitos series consists of somewhat excessively drained, very deep loamy sands that formed in alluvium derived from marine sandstone. These soils occur on small alluvial fans in narrow valleys at eleveations of 25 to 1,000 feet amsl. Some areas are subject to localized

flooding and deposition. Corralitos soil is used primarily for range; dryland crops; urban development; and for growing truck crops, alfalfa, citrus, and other fruits under irrigation.

Huerhuero series – The Huerhuero series consists of moderately well-drained soils that formed in alluvium from granitic sources. These soils are found primiarly on alluvial fans and floodplains, including urban areas, at elevations of 6 to 1,690 feet amsl. These soils are primarily used for growing small grain, truck crops, flowers, and for industrial and urban development.

Made land – Made land consists of areas that have been filled with excavated soil or paving material that was dredged from bays, lagoons, or harbors. This land is frequently associated with building sites.

Salinas series – The Salinas series consists of moderately well-drained to well-drained soils with slow to medium runoff and moderately slow permeability. Salinas soils formed in alluvium weathered from sandstone and shale and occur on alluvial plains, fans, and terraces with slopes ranging from 0 to 9 percent at elevations of 50 to 2,000 feet amsl. These soils are primarily used for growing citrus, truck crops, tomoatoes, and flowers, and for small pasture lots.

Terrace escarpments – Terrace escarpments occur between narrow floodplains and the adjoining uplands and between the steep sides of drainageways that entrench into level uplands.

Tidal flats – Tidal flats consist of areas that are periodically covered with tidal water. These soils are used primarily for wildlife habitat and are essentially barren of vegetation.

As stated in the Arid West Supplement, RBC used the hydric soils list as a tool and made final hydric soils determinations based on field-collected data at representative wetland delineation sample points deemed appropriate on site as recorded on the attached Arid West Wetland Determination Data Forms (Appendix C) discussed further in Section 6.1.

4.2 Hydrology

Per the review of on-line data sources, USGS NHD maps one "Swamp Marsh" within the northern portion of the review area and maps the approximate location of Peñasquitos Creek within the central/eastern portion of the review area as "Stream/River" (intermittent) (Figure 2; USGS 2020). USGS NHD also maps five features with a designation of "Stream/River" (ephemeral) within the southern portion of the review area (Figure 2; USGS 2020). USFWS NWI maps one feature with a designation of "Estuarine and Marine Deepwater" that is classified as E1UBL[1] and one feature with a designation of "Estuarine and Marine Wetland" that is classified as E2EM1P[2] in the far northern portion of the review area (Figure 4; USFWS 2021). The USFWS NWI also maps eight features as "Freshwater Emergent Wetland" within the northern and central portions of the review area. The USFWS NWI classifies these eight "Freshwater Emergent Wetland" features as PEM1A[3], PEM1C[4], PEM1/SSA[5], and PEM1/SSC[6] (Figure 4; USFWS 2021). The USFWS NWI also maps one feature as

[1] Estuarine (E) subtidal (1) unconsolidated bottom (UB) subtidal (L)
[2] Estuarine (E) intertidal (2) emergent (EM) persistent (1) irregularly flooded (P)
[3] Palustrine (P) emergent (EM) persistent (1) temporarily flooded (A)
[4] Palustrine (P) emergent (EM) persistent (1) seasonally flooded (C)
[5] Palustrine (P) emergent (EM) persistent (1) scrub-shrub (SS) temporarily flooded (A)
[6] Palustrine (P) emergent (EM) persistent (1) scrub-shrub (SS) seasonally flooded (C)

"Freshwater Emergent Wetland" that is classified as PEM1Cx[7] within the southern portion of the review area. USFWS NWI maps four features within the northern portion of the review area and one feature within the southern portion of the review area with a designation of "Freshwater Pond" that are classified as PUSA[8] (Figure 4; USFWS 2021). The USFWS NWI maps twelve features with a designation of "Freshwater Forested/Shrub Wetland" throughout the review area. The USFWS NWI classifies these eleven "Freshwater Forested/Shrub Wetland" features as PSSA[9], PSSC[10], PSSCx[11], and PFO/SSC[12] (Figure 4; USFWS 2021). The USFWS NWI maps six features with a designation of "Riverine" throughout the southern portion of the review area. The USFWS NWI classifies these six "Riverine" features as R2UBHx[13], R2EM2Hx[14], R2EM2F[15], R4SBC[16], and R4SBCx[17]. The USFWS NWI maps two features as "Forested/Shrub Riparian" that are classified as Rp1SS[18] within the central portion of the review area (Figure 4; USFWS 2021).

Known hydrologic sources for the observed on-site drainages, discussed further below, are direct precipitation and runoff from surrounding roads and development. Based on field observations, features within the review area generally drain southeast to northwest towards the Pacific Ocean. Based on historical studies and hydrodynamic modeling of current conditions, tidal hydrology is restricted to the existing tidal channel in the northernmost portion of the review area. Tidal flows are restricted farther upstream from the narrow portion of the review area between the railroad embankment and bluff slopes ("pinch point") due to persistent freshwater flows and the elevations of the channels and surrounding marsh, which are 4 to 8 feet higher than the tidal channel closer to the lagoon inlet. The majority of the review area is a floodplain that was historically composed of non-tidal salt marsh. Urbanization of the watershed and hydrology alterations in the lagoon have resulted in year-round persistent freshwater flows, greater stormwater flows and retention times, and deposition of sandy sediment, which have degraded the salt marsh habitat and converted upstream portions of Peñasquitos Creek/Lagoon to freshwater wetlands. Specifically within the review area, these flows have originated from the following outfalls: Tripp Court, Carmel Mountain Road, Industrial Court, Carmel Mountain Road "North," Flintkote Avenue, and Dunhill Street (Figure 5).

The field assessment detailed in Section 6 provides additional information about whether flows from the delineated features were presumed to continue off site and downstream.

4.3 Vegetation

Table 3 provides vegetation community acreages within the review area based on vegetation mapping conducted by Blackhawk Environmental from May 2020 through April 2021 as further

[7] Palustrine (P) emergent (EM) persistent (1) seasonally flooded (C) excavated (x)
[8] Palustrine (P) unconsolidated shore (US) temporarily flooded (A)
[9] Palustrine (P) scrub-shrub (SS) temporarily flooded (A
[10] Palustrine (P) scrub-shrub (SS) seasonally flooded (C)
[11] Palustrine (P) scrub-shrub (SS) seasonally flooded (C) excavated (x)
[12] Palustrine (P) forested (FO) scrub-shrub (SS) seasonally flooded (C)
[13] Riverine (R) lower perennial (2) unconsolidated bottom (UB) permanently flooded (H) excavated (x)
[14] Riverine (R) lower perennial (2) emergent (EM) non-persistent (2) permanently flooded (H) excavated (x)
[15] Riverine (R) lower perennial (2) emergent (EM) non-persistent (2) semipermanently flooded (F)
[16] Riverine (R) intermittent (4) streambed (SB) seasonally flooded (C)
[17] Riverine (R) intermittent (4) streambed (SB) seasonally flooded (C) excavated (x)
[18] Riparian (Rp) lotic (1) scrub-shrub (SS)

detailed in the *Biological Technical Report – Draft, Los Peñasquitos Lagoon Restoration – Phase 1*, prepared by Blackhawk Environmental and dated August 18, 2021 (Blackhawk BTR; Blackhawk Environmental 2021) and updated by RBC regulatory specialists/biologists during the January 11, 12, and 20, 2022 aquatic resource delineation field visits (Figure 7). The review area primarily consists of southern arroyo willow riparian forest. The vegetation community classifications follow *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986) and *Draft Vegetation Communities of San Diego County* (Oberbauer et al. 2008) and are consistent with the classification system used in the Multiple Species Conservation Program (MSCP) and required by the City of San Diego Biology Guidelines (City of San Diego 2018). The following vegetation community descriptions are primarily based on the Blackhawk BTR, with minor revisions by RBC.

It should be noted that due to changes in hydrologic conditions in Peñasquitos Creek/Lagoon and watershed urbanization, as described above in Section 4.2, much of the review area is composed of historic non-tidal salt marsh habitat that has been degraded or converted to freshwater habitats. As such, some saline and brackish vegetation communities described below are likely the result of saline soil conditions but mostly lack saline or brackish surface hydrology.

Table 3. Vegetation Communities within Review Area

Vegetation Community/Land Cover Type	Acre(s)[1]
Alkali Meadow	1.09
Alkali Seep	0.47
Arundo	4.74
Blue Elderberry Series	2.84
Coastal and Valley Freshwater Marsh	11.35
Coastal and Valley Freshwater Marsh – Disturbed	0.13
Coastal Brackish Marsh	1.52
Developed	12.14
Diegan Coastal Sage Scrub	45.72
Diegan Coastal Sage Scrub – Disturbed	1.60
Disturbed Habitat	1.87
Disturbed Habitat – Coastal Wattle	0.01
Disturbed Wetland	0.05
Iceplant	0.58
Maritime Succulent Scrub	0.06
Mule Fat Scrub	12.24
Non-native Grassland	9.40

Vegetation Community/Land Cover Type	Acre(s)[1]
Non-vegetated Channel	3.13
Open Water	6.91
Pampas Grass	0.44
Saltpan/Mudflats	0.42
Scrub Oak Chaparral	1.88
Southern Arroyo Willow Riparian Forest	66.42
Southern Coastal Salt Marsh	12.92
Southern Coastal Salt Marsh – Degraded	41.26
Southern Willow Scrub	3.20
Southern Willow Scrub – Disturbed	0.37
Tamarisk	0.06
Torrey Pine Forest	0.31
Total	243.16

[1] Acreages summed using raw numbers provided during GIS analysis (available upon request) and thus the sum of the total rounded numbers may not directly add up in this table.

Alkali Meadow

Alkali meadow consists of dense to fairly open, low-growing perennial grasses, sedges, and herbaceous plants. Meadows typically feature only a few plant species that grow in fine-textured, more or less permanently moist, alkaline soils. Alkali meadow within the review area (1.09 acres) is dominated by alkali weed (*Cressa truxillensis*) and western sea purslane (*Sesuvium verrucosum*). This vegetation community is located in areas that do not currently support tidal exchange, and therefore is likely supported by saline soil conditions.

Alkali Seep

Alkali seep consists primarily of a few species of perennial herbs in permanently moist to wet alkaline seeps. Alkali seep within the review area (0.47 acre) is dominated by alkali heath (*Frankenia salina*), alkali mallow (*Malvella leprosa*), and saltgrass (*Distichlis spicata*), as well as occasional pickleweeds (*Salicornia* sp.). This vegetation community is located in an area that does not currently support tidal exchange, and therefore is likely supported by saline soil conditions.

Arundo

The Arundo community is dominated by dense stands of the invasive, non-native giant reed (*Arundo donax*). Giant reed is common in drainages and can reach up to 30 feet in height (Jepson Flora Project 2022). Arundo within the review area (4.74 acres) occurs as small patches throughout the southern portion of the review area.

Blue Elderberry Series

Blue elderberry series is similar to southern willow scrub, but is dominated by blue elderberry (*Sambucus nigra* ssp. *caerulea*). Blue elderberry series within the review area (2.84 acres) also includes the following associated species: arroyo willow (*Salix lasiolepsis*), coyote brush (*Baccharis pilularis*), and laurel sumac (*Malosma laurina*).

Coastal and Valley Freshwater Marsh

Coastal and valley freshwater marsh is dominated by perennial monocots roughly 13 to 16 feet tall. Within the review area (11.35 acres), this vegetation community is composed of common tule (*Schoenoplectus acutus*), alkali bulrush (*Bolboschoenus maritimus*), southern bulrush (*Schoenoplectus californicus*), and cattails (*Typha domingensis, T. latifolia*).

Coastal and Valley Freshwater Marsh – Disturbed

Coastal and valley freshwater marsh – disturbed within the review area (0.13 acre) has a similar plant composition as coastal and valley freshwater marsh with a large presence of non-native species and disturbance specialists (such as cocklebur [*Xanthium strumarium*]).

Coastal Brackish Marsh

Coastal brackish marsh is dominated by perennial, emergent, herbaceous monocots up to approximately 6 feet tall. Cover is often complete and dense. This marsh type is an intergrade between salt marshes and freshwater marshes that features plants characteristic of each and has hydrology typically affected by both salt and fresh water. Within the review area (1.52 acres), this community is dominated by alkali bulrush, yerba mansa (*Anemopsis californica*), cocklebur, alkali heath, and alkali mallow. This vegetation community is located in an area that does not currently support tidal exchange, and therefore is likely supported by saline soil conditions.

Developed

Urban/Developed land supports little to no native vegetation and is comprised of human-made structures (buildings, pavement, etc.) or human-made disturbances (vegetation clearing, mowing, vehicle disturbance, etc.). Developed land (12.14 acres) occurs throughout the review area including: the ranger's residence at the central-western edge of the review area; Flintkote Avenue; the paved extension of Flintkote Avenue that extends north of the ranger's residence; proximal portions of the railbed; the banks of the concrete-lined channel; irrigated, ornamental landscaping; portions of a hard-packed trail way; a concrete brow ditch; hard-packed road shoulders; and part of a materials yard.

Diegan Coastal Sage Scrub

Diegan coastal sage scrub within the review area (45.72 acres) is located on the western slope and consists of low, soft-woody subshrubs. Dominant species in this community include California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), and coast goldenbush (*Isocoma menziesii*). Black sage (*Salvia mellifera*), white sage (*Salvia apiana*), lemonadeberry (*Rhus integrifolia*), laurel sumac, deerweed (*Acmispon glaber*), and California encelia (*Encelia californica*) are also observed in this community. The understory is generally composed of non-native grasses and broad leaved plants such as brome grasses (*Bromus* sp.) and

storksbills (*Erodium* sp.).

Diegan Coastal Sage Scrub – Disturbed

Diegan coastal sage scrub – disturbed (1.60 acres) was mapped where the presence of non-native grass species and ruderal non-native annual plants (e.g., shortpod mustard [*Hirschfeldia incana*] and tocalote [*Centaurea melitensis*]) were significantly more pronounced than non-disturbed coastal sage scrub variants.

Disturbed Habitat

Disturbed habitat includes areas that have experienced previous anthropogenic manipulation such that they do not exhibit recognizable native or naturalized vegetation. Disturbed habitat within the review area (1.87 acres) includes portions within and lining the channel along Dunhill Street; and sections lining the concrete-lined channel in the southern region, the paved roadway in the southwestern region, and the railbed.

Disturbed Habitat – Coastal Wattle

Disturbed habitat includes those areas that have experienced previous, legal anthropogenic manipulation such that they do not exhibit recognizable native or naturalized vegetation. Disturbed habitat – coastal wattle within the review area (0.01 acre) includes one small area dominated by coastal wattle (*Acacia cyclops*) within the northern portion of the review area.

Disturbed Wetland

Disturbed wetland includes areas that have been significantly modified by human activity, are permanently or periodically inundated by water, and may be unvegetated or contain scattered native or non-native vegetation, particularly wetland plants. Disturbed wetland within the review area (0.05 acre) includes an area south of Dunhill Street that is dominated by giant reed, curly dock (*Rumex crispus*), charlock mustard (*Sinapis arvensis*), castor bean (*Ricinus communis*), prickly sow-thistle (*Sonchus asper*), and bristly ox-tongue (*Helminthotheca echioides*).

Iceplant

Iceplant is dominated by dense mats of the non-native iceplant (*Carpobrotus edulis*). Iceplant within the review area (0.58 acre) occurs as small patches within the northern portion of the review area and along a paved road within the southwest corner of the review area.

Maritime Succulent Scrub

Maritime succulent scrub occurs on the coastline and offshore islands, spanning south from the Torrey Pines State Natural Reserve area, towards El Rosarito, Baja California Norte, Mexico. Maritime succulent scrub in the review area (0.06 acre) is dominated by California sagebrush, California buckwheat, coast goldenbush, coast cholla (*Cylindropuntia prolifera*), and coast prickly pear (*Opuntia littoralis*).

Mule Fat Scrub

Mule fat scrub is located along intermittent stream channels and around freshwater marshes, and is

dominated by mule fat (*Baccharis salicifolia*). Mule fat scrub within the review area (12.24 acres) is distributed around the southern arroyo willow riparian forest, southern willow scrub, and marshlands within the southern and central regions of the review area.

Non-Native Grassland

Non-native grassland is comprised of sparse annual grasses, which reach heights below three feet. In the review area this community (9.40 acres) is dominated by perennial ryegrass (*Festuca perennis*), brome grasses, oats (*Avena* spp.), filarees (*Erodium* spp.), and mustards (Brassicaceae family).

Non-Vegetated Channel

Non-vegetated channel includes rocky or developed waterways or flood channels, as well as open water channels devoid of vegetation that are permanently unvegetated due to permanent water, variable water levels, heavy scouring, and/or a shallow aquitard. Non-vegetated channel within the review area (3.13 acres) consists of a concrete-lined channel that conveys water from urban runoff and rain events.

Open Water

Open water describes an aquatic area that lacks emergent vegetation but supports hydrophytic vegetation around its margins, such as mule fat scrub, southern willow scrub, and coastal and valley freshwater marsh. Unvegetated portions of Carroll Canyon Creek and Peñasquitos Creek/Lagoon within standing water were mapped as open water (6.91 acres) within the review area. Based on review of aerial imagery, these areas have persistent standing water and are not solely the result of recent rain events.

Pampas Grass

Pampas grass is dominated by dense stands of invasive pampas grass (*Cortaderia selloana*). Pampas grass, a perennial, ranges from approximately 6 to 13 feet in height (Jepson Flora Project 2022). Pampas grass within the review area (0.44 acre) occurs as several patches throughout Peñasquitos Creek/Lagoon.

Saltpan/Mudflats

Saltpan/mudflats occur via the deposition of mud by tides or rivers and thereby occur most commonly in estuaries or bays. Within the review area saltpan/mudflats (0.42 acre) is fragmented and exhibits little to no vegetation. This vegetation community is located in areas that do not currently support tidal exchange, and therefore is likely supported by hypersaline soil conditions.

Scrub Oak Chaparral

Scrub oak chaparral is characterized by dense, evergreen chaparral species (e.g., Nuttall's scrub oak [*Quercus dumosa*], and mountain mahogany [*Cercocarpus betuloides*]) that may reach up to 20 feet in height. Dominant species of this community in the review area (1.88 acres) include Nuttall's scrub oak, lemonadeberry, and big pod ceanothus (*Ceanothus megacarpus*).

Southern Arroyo Willow Riparian Forest

Southern arroyo willow riparian forest is dominated by broad-leafed trees and arroyo willow with a closed or nearly-closed canopy. Within the review area (66.42 acres), this community is dominated by arroyo willow, red willow (*Salix laevigata*), sand bar willow (*Salix exigua*), and Goodding's black willow (*Salix gooddingii*). Some western sycamore trees (*Platanus racemosa*) are also dispersed throughout. An understory of invasive perennials and annuals plants is present; this understory includes giant reed, pampas grass, castor bean, hoary cress (*Lepidium draba*), bromes, little California melica grass (*Melica imperfecta),* and Bermuda buttercup (*Oxalis pes-caprae*).

Southern Coastal Salt Marsh

Southern coastal salt marsh occurs in bays, lagoons, and estuaries along the coast. This vegetation community is characterized by salt-tolerant, succulent species. Southern coastal salt marsh within the review area (12.92 acres) is dominated by Parish's glasswort (*Arthrocnemum subterminale*), alkali bulrush, Pacific pickleweed (*Salicornia pacifica*), and alkali heath. This vegetation community (with the exception of areas on the margin of the tidal channel) is located in an area that does not currently support tidal exchange, and therefore is likely supported by saline soil conditions.

Southern Coastal Salt Marsh – Degraded

Southern coastal salt marsh – degraded within the review area (41.26 acres) has a similar plant composition as southern coastal salt marsh with a larger presence of non-native species such as perennial ryegrass, tall wheatgrass (*Elymus ponticus*), and/or other grasses than pickleweeds, alkali heath, or alkali mallow. Southern coastal salt marsh – degraded forms a large part of the review area and is located in an area that does not currently support tidal exchange, and therefore is likely supported by saline soil conditions but where more recent freshwater influence has promoted invasion by perennial ryegrass.

Southern Willow Scrub

Southern willow scrub consists of moderate density riparian woodland with predominately smaller riparian trees and some larger riparian trees throughout. Within the review area (3.20 acres), this community is composed mostly of arroyo willow and Goodding's black willow, with a non-native understory similar to that of the southern arroyo willow riparian forest with giant reed, pampas grass, castor bean, hoary cress, non-native bromes, melica, and Bermuda buttercup. Southern willow scrub is located in small patches, scattered adjacent to the southern arroyo willow riparian forest and Diegan coastal sage scrub within the review area.

Southern Willow Scrub - Disturbed

Southern willow scrub – disturbed within the review area (0.37 acre) has a similar plant composition as southern willow scrub with a large presence of invasive, non-native species (most notably, giant reed) in association with willow trees.

Tamarisk

Tamarisk is dominated by dense monotypic stands of invasive shrubs or small trees of the *Tamarix* genus. Tamarisk are able to tolerate high salinity and low water availability, thereby inhabiting

streambeds in lieu of native vegetation (USGS 2019). Tamarisk within the review area (0.06 acre) occurs as several small patches of saltcedar (*Tamarix ramosissima*) in the central portion of the review area within Peñasquitos Creek/Lagoon.

Torrey Pine Forest

Torrey pine forest is exclusively confined to disjunct areas of the San Diego coastline and some offshore islands. Torrey pine forest is characterized by coniferous trees which reach up to 65 feet and compose a moderate to dense forest. The dominant species is Torrey pine (*Pinus torreyana*) which tends to cover a varying understory (i.e., bare ground, grasses, or dense chaparral). Within the review area, Torrey pine forest (0.31 acre) was observed on the northern end, exhibiting Torrey pine and Nuttall's scrub oak as the dominant species.

5 Precipitation Data and Analysis

RBC utilized the NRCS Agricultural Applied Climate Information System (AgACIS) database for the San Diego 13.9 N station because of its comprehensive data and proximity to the review area (i.e., approximately 4.75 miles southeast of the review area) to access pre-site visit precipitiation data (NRCS 2021), as shown in Table 4. RBC also utilized the Corps' Antecedent Precipitation Tool (APT) to assess whether or not the delineation date occurred in a drier, average, or wetter than normal period for the review area (Corps 2021). The Corps created the APT to assist with determining the normal periodic range of precipitation and other climate variables for the waterbody or waterbodies within a review area. Additionally, the APT can also generally inform the regulatory agencies whether or not normal hydrologic/climatic conditions were on site at the time of the site visit and assist with completion of the Wetland Determination Data Forms (Appendix C).

5.1 Precipitation Summary

Table 4 describes the estimated monthly total precipitation for the review area from November 2020 – December 2021 to provide the pertinent pre-site visit precipitation data from the NRCS database for the San Diego 13.9 N station (NRCS 2021).

Table 4. Precipitation Data for November 2020 – December 2021

	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Monthly Total Precip. (inch[es])	0.82	0.87	2.25	0.21	1.36	0.30	0.03	0.00	0.30	0.16	0.00	1.52	0.00	3.85

5.2 Antecedent Precipitation Tool Data

The APT provides three climatological parameters: Palmer Drought Severity Index (PDSI), season, and antecedent precipitation condition. The PDSI is a standardized index calculated on a monthly basis with PDSI value outputs ranging from -10 (extremely dry) to +10 (extremely wet) (National Oceanic and Atmospheric Administration [NOAA] 2020) to assess drought conditions (i.e., PDSI Class). The APT determines wet versus dry season based on related procedures provided in the

applicable regional supplement for the review area (i.e., Arid West Supplement). The antecedent precipitation condition is classified as drier than normal with an antecedent runoff condition (ARC) score less than 10; normal with an ARC score between 10 to 14; or wetter than normal with an ARC score greater than 14 (Corps 2000).

Table 5 summarizes the key data extrapolated from the APT output to compare the current year 30-day rolling total to the averaged 30-year normal for the weather stations with comprehensive historical data within 30 miles of the review area: estimated drought conditions, wet or dry season determination, ARC score, and antecedent precipitation condition. The APT output provided in Appendix D and summarized in Table 5, noted a PDSI class of "severe drought" for the review area; the precipitation and climatic conditions were "wetter than normal" for the review area based on the 30-day rolling totals for the three months preceding the field survey date. Field staff considered the "severe drought" conditions during the field delineation, evaluated how the drought conditions could affect the data collected on the Arid West Wetland Determination Data Forms and Ephemeral and Intermittent Streams OHWM Datasheets (Appendix C), and used recent and historic aerials to ensure appropriate representation of the extent of the on-site aquatic features for this ARDR considering the 2021/22 drought conditions.

Table 5. Antecedent Precipitation Tool Data for the Review Area

Field Survey Date	PDSI Value	PDSI Class	Season	ARC Score	Antecedent Precipitation Condition
1/11/2022	-3.77	Severe Drought	Wet Season	15	Wetter than Normal
1/12/2022	-3.77	Severe Drought	Wet Season	15	Wetter than Normal
1/20/2022	-3.77	Severe Drought	Wet Season	17	Wetter than Normal

6 Description of Observed Potential Aquatic Resources

The following descriptions of observed potential aquatic resources within the review area document the presence or absence of aquatic resource indicators per the methods discussed in Section 3. The subsections below are intended to be reviewed independently under each agency's purview unless otherwise directed in the text (i.e., the aquatic resource description is the same between two or more agencies) given the various regulatory definitions and standards per each agency.

Names of the observed aquatic resources in this ARDR also vary depending on the agency to align with agency aquatic resource definitions and standards. The naming convention is provided to distinguish features which are physically separate (numbered from upstream to downstream) or the type of feature (wetland occurring outside of the OHWM vs. wetland occurring within the OHWM vs. non-wetland water).

For the Corps and the RWQCB, the observed aquatic resources were delineated into 12 separate aquatic resources as follows: NWW-W-1A, NWW-1B, NWW-1C, NWW-W-1D, NWW-W-2A, NWW-2B, NWW-W-3, NWW-4, NWW-5, NWW-6, NWW-7, and W-1 (Figures 6A and 6B).

For the CDFW, the observed aquatic resources were delineated into 7 separate features and their associated riparian/wetland habitats and are labeled and classified as follows: Carroll Canyon

Creek (equivalent to NWW-W-1A, NWW-1B, NWW-1C, and NWW-W-1D per the Corps/RWQCB), Peñasquitos Creek/Lagoon (equivalent to NWW-W-2A, NWW-2B, and W-1 per the Corps/RWQCB), NWW-1 (equivalent to NWW-W-3 per the Corps/RWQCB), NWW-2 (equivalent to NWW-4 per the Corps/RWQCB), NWW-3 (equivalent to NWW-5 per the Corps/RWQCB), NWW-4 (equivalent to NWW-6 per the Corps/RWQCB), and NWW-5 (equivalent to NWW-7 per the Corps/RWQCB) (Figure 6C).

Appendix E provides site photographs of the features within the review area; all figures in the Figure 6 series display representative photo points.

6.1 Corps Wetland Waters of the U.S.

RBC collected data at 29 representative Wetland Data Form Points (WDP) within the review area, to determine the presence or absence of jurisdictional wetland waters of the U.S./State (Figure 6A; Appendix C). All three federal wetland parameters were observed at 15 of the 29 WDP locations. Despite meeting the definition of a federal wetland, waters occuring within a defined OHWM and/or CWA Section 404 HTL are classified as non-wetland waters of the U.S. per Corps' protocols (i.e., wetlands occuring within the OHWM are non-wetland waters by regulation and guidance). As such, see *Non-Wetland Water Wetland 1A, Non-Wetland Water Wetland 1D, Non-Wetland Water Wetland 2A,* and *Non-Wetland Water Wetland 3* in Section 6.2 below for further discussion of three-parameter wetlands observed within the OHWM.

Wetland 1

Wetland [W-] 1 is composed of areas within the northern portion of the review area that met all three federal wetland parameters and occur outside of the delineated OHWM and CWA Section 404 HTL, as shown on Figure 6A (Table 6; Appendix E, Photo 28). See Table 6 for the representative wetland delineation data for this feature. See Table 7 for the extent of RHA Section 10 navigable waters of the U.S. for this feature.

6.2 Corps Non-Wetland Waters of the U.S.

Non-Wetland Water - Wetland 1A

NWW-W-1A is a vegetated, channelized portion of Carroll Canyon Creek primarily composed of southern willow scrub – disturbed (Figure 6A; Table 6; Appendix E, Photo 1). NWW-W-1A occurs within the southern portion of the review area, as shown on Figure 6A, generally flows northwest, and travels for approximately 179 linear feet before converging with NWW-1B (see *Non-Wetland Water 1B* below). NWW-W-1A met all three federal wetland parameters. Although this feature met the three-parameter wetland definition, because it is located within the defined OHWM it is considered a non-wetland water of the U.S. per Corps' protocols (i.e., wetlands occuring within the OHWM are non-wetland waters by regulation and guidance). See Table 6 for the estimated OHWM and representative OHWM and wetland delineation data for this feature.

Non-Wetland Water 1B

NWW-1B is a concrete-lined, channelized portion of Carroll Canyon Creek (Figure 6A; Table 6; Appendix E, Photo 4). NWW-1B occurs directly downstream of NWW-W-1A, as shown on Figure 6A, generally flows northwest, and travels for approximately 1,748 linear feet on site before

converging with NWW-1C (see *Non-Wetland Water 1C* below). NWW-1B did not meet all three federal wetland parameters. See Table 6 for the estimated OHWM and representative OHWM and wetland delineation data for this feature. See Table 7 for the extent of RHA Section 10 navigable waters of the U.S. for this feature.

Non-Wetland Water 1C

NWW-1C is a channelized portion of Carroll Canyon Creek composed of open water (Figure 6A; Table 6; Appendix E, Photo 5). NWW-1C occurs directly downstream of NWW-1B, as shown on Figure 6A, generally flows northwest, and travels for approximately 1,552 linear feet before converging with NWW-W-2A (see *Non-Wetland Water Wetland 2A* below). NWW-1C did not meet all three federal wetland parameters. See Table 6 for the estimated OHWM and representative OHWM and wetland delineation data for this feature. See Table 7 for the extent of RHA Section 10 navigable waters of the U.S. for this feature.

Non-Wetland Water - Wetland 1D

NWW-W-1D is a heavily vegetated, channelized portion of Carroll Canyon Creek primarily composed of southern arroyo willow riparian forest and Arundo (Figure 6A; Table 6; Appendix E, Photo 6). NWW-W-1D occurs directly downstream of NWW-1B, as shown on Figure 6A, generally flows northwest, and travels for approximately 27 linear feet before converging with NWW-W-2A (see *Non-Wetland Water Wetland 2A* below). NWW-W-1D met all three federal wetland parameters. RBC collected wetland delineation data along one transect (WDP 4 – 5) per the methods described above in Section 3.2.1 to provide representative sample points within each of the vegetation communities ocurring within this feature (see Figure 6C to determine the representative vegetation community for each WDP). Although this feature met the three-parameter wetland definition, because it is located within the defined OHWM it is considered a non-wetland water of the U.S. per Corps' protocols (i.e., wetlands occuring within the OHWM are non-wetland waters by regulation and guidance). See Table 6 for the estimated OHWM and representative OHWM and wetland delineation data for this feature. See Table 7 for the extent of RHA Section 10 navigable waters of the U.S. for this feature.

Non-Wetland Water - Wetland 2A

NWW-W-2A is a heavily vegetated portion of Peñasquitos Creek/Lagoon that conveys storm runoff on site as a channelized feature before converging with NWW-1C (see *Non-Wetland Water 1C* above) and NWW-W-1D (see *Non-Wetland Water Wetland 1D* above), and continuing northwest as it transitions to a non-tidal lagoon area (Figure 6A; Table 6; Appendix E, Photos 8, 10 – 12, 14 – 17, 19 – 23, 26, 27). Continuing northwest, NWW-W-2A narrows and transitions to a tidally-influenced lagoon area that receives flows from the Pacific Ocean before continuing off site. NWW-W-2A is composed of the following vegetation communities: alkali meadow, alkali seep, Arundo, coastal and valley freshwater marsh, coastal and valley freshwater marsh – disturbed, coastal brackish marsh, mule fat scrub, pampas grass, saltplan/mudflats, southern arroyo willow riparian forest, southern coastal salt marsh, southern coastal salt marsh – degraded, southern willow scrub, southern willow scrub – disturbed, and tamarisk.

RBC collected wetland delineation data along three transects (WDP 10 – 14, WDP 15 – 19, and WDP 20 – 22) per the methods described above in Section 3.2.1 to provide representative sample

points within each of the vegetation communities occurring within this feature (see Figure 6C to determine the representative vegetation community for each WDP). Note that RBC selected the locations of the transects prior to the site visit based on the previously mapped vegetation community data and altered the location of the WDPs in the field based on site access. Wetland delineation data was also collected at several additional sampling points (WDP 6 – 9 and 29) to confirm the wetland boundary. NWW-W-2A met all three federal wetland parameters and occurs entirely within the delineated OHWM . Although this feature met the three-parameter wetland definition, because it is located within the defined OHWM it is considered a non-wetland water of the U.S. per Corps' protocols (i.e., wetlands occuring within the OHWM are non-wetland waters by regulation and guidance). Note that based on State Parks guidance to reduce trampling of vegetation, access to some areas and/or vegetation communities was not possible. As such, the estimated extent of three-parameter federal wetlands was based on representative wetland delineation data collected and observations of similar hydrology, topography, and presence of hydrophytic vegetation within the feature.

RBC staff used the NOAA Tide Predictions website to determine the MHW of 4.60 feet Mean Lower Low Water (MLLW) and the maximum predicted annual tide of 7.01 feet MLLW on January 2, 2022 derived from the La Jolla, CA (9410230) station (NOAA 2022). RBC then modeled the 4.60 feet MLLW and 7.01 feet MLLW lines from 2-foot contours, mapping all contiguous areas at or below 7.01 feet MLLW as tidal waters within CWA Section 404 jurisdiction and all areas at or below 4.60 feet MLLW as navigable waters of the U.S. under Section 10 of the RHA (see Figure 6A). See Table 6 for the estimated OHWM and representative OHWM and wetland delineation data for this feature. See Table 7 for the extent of RHA Section 10 tidal waters, CWA Section 404 tidal and non-tidal waters, and RHA Section 10 navigable waters of the U.S. for this feature.

Non-Wetland Water 2B

NWW-2B consists of the open water and areas of upland vegetation community (areas that did not meet all three federal wetland parameters) within Peñasquitos Creek/Lagoon (Figure 6A; Table 6; Appendix E, Photos 25 – 26). NWW-2B did not meet all three federal wetland parameters. Note that several slightly elevated/bermed areas dominated by non-native grassland were included within the OHWM based on the presence of OHWM indicators. See Table 6 for the estimated OHWM and representative OHWM and wetland delineation data for this feature. See Table 7 for the extent of RHA Section 10 tidal waters, CWA Section 404 tidal and non-tidal waters, and RHA Section 10 navigable waters of the U.S. for this feature.

Non-Wetland Water Wetland 3

NWW-W-3 is a vegetated, roadside drainage composed of disturbed wetland (Figure 6A; Table 6; Appendix E, Photos 30 and 32). NWW-W-3 originates at a culvert south of Dunhill Street, as shown on Figure 6A, generally flows east/northeast, and travels for approximately 433 linear feet before entering a culvert. NWW-W-3 met all three federal wetland parameters and occurs entirely within the delineated OHWM. Although this feature met the three-parameter wetland definition, because it is located within the defined OHWM it is considered a non-wetland water of the U.S. per Corps' protocols (i.e., wetlands occuring within the OHWM are non-wetland waters by regulation and guidance). See Table 6 for the estimated OHWM and representative OHWM and wetland delineation data for this feature.

Non-Wetland Water 4

NWW-4 is a sparsely vegetated drainage within an area of blue elderberry series (Figure 6A; Table 6). NWW-4 enters the review area then travels north for approximately 43 linear feet before entering a culvert that continues under the adjacent road. The area adjacent to the culvert north of the road was heavily vegetated and no OHWM indicators were observed. NWW-4 did not meet all three federal wetland parameters. See Table 6 for the estimated OHWM and representative OHWM and wetland delineation data for this feature.

Non-Wetland Water 5

NWW-5 is a sparsely vegetated drainage within an area of Diegan coastal sage scrub and southern willow scrub (Figure 6A; Table 6; Appendix E, Photos 33 and 35). NWW-5 enters the review area then travels northwest for approximately 334 linear feet before dissipating at the trail/foot path. NWW-5 did not meet all three federal wetland parameters. See Table 6 for the estimated OHWM and representative OHWM and wetland delineation data for this feature.

Non-Wetland Water 6

NWW-6 is an unvegetated drainage within an area of southern willow scrub between Sorrento Valley Road and the railroad tracks (Figure 6A; Table 6; Appendix E, Photo 37). The drainage recieves storm flows from two outfalls: Industrial Court and Carmel Mountain Road. NWW-6 conveys flows for approximately 301 linear feet and connects to NWW-W-2A (see *Non-Wetland Water Wetland 2A* above) via a culvert under the railroad tracks. NWW-6 did not meet all three federal wetland parameters. See Table 6 for the estimated OHWM and representative OHWM and wetland delineation data for this feature.

Non-Wetland Water 7

NWW-7 is a heavily vegetated drainage within an area of mule fat scrub (Figure 6A; Table 6; Appendix E, Photo 38). NWW-7 enters the review area then travels south for approximately 57 linear feet before dissipating at Sorrento Valley Road. NWW-7 did not meet all three federal wetland parameters. See Table 6 for the estimated OHWM and representative OHWM and wetland delineation data for this feature.

6.3 RWQCB Wetland Waters of the State

Figure 6B displays the estimated extent of RWQCB wetlands within the review area based on the presence of all three federal/State wetland parameters; Table 8 provides additional details.

Wetland 1

RWQCB wetland boundaries (W-1) are the same boundaries defined for W-1 described in Section 6.1 above.

Non-Wetland Water Wetland 1A

RWQCB wetland boundaries (NWW-W-1A) are the same boundaries defined for NWW-W-1A described in Section 6.2 above.

Non-Wetland Water Wetland 1D

RWQCB non-wetland boundaries (NWW-W-1D) are the same boundaries defined for NWW-W-1D described in Section 6.2 above.

Non-Wetland Water Wetland 2A

RWQCB non-wetland boundaries (NWW-W-2A) are the same boundaries defined for NWW-W-2A described in Section 6.2 above.

Non-Wetland Water Wetland 3

RWQCB non-wetland boundaries (NWW-W-3) are the same boundaries defined for NWW-W-3 described in Section 6.2 above.

6.4 RWQCB Non-Wetland Waters of the State

Figure 6B displays the estimated extent of RWQCB non-wetlands within the review area based on the presence of OHWM indicators; Table 8 provides additional details.

Non-Wetland Water 1B

RWQCB non-wetland boundaries (NWW-1B) are the same boundaries defined for NWW-1B described in Section 6.2 above.

Non-Wetland Water 1C

RWQCB non-wetland boundaries (NWW-1C) are the same boundaries defined for NWW-1C described in Section 6.2 above.

Non-Wetland Water 2B

RWQCB non-wetland boundaries (NWW-2B) are the same boundaries defined for NWW-2B described in Section 6.2 above.

Non-Wetland Water 4

RWQCB non-wetland boundaries (NWW-4) are the same boundaries defined for NWW-4 described in Section 6.2 above.

Non-Wetland Water 5

RWQCB non-wetland boundaries (NWW-5) are the same boundaries defined for NWW-5 described in Section 6.2 above.

Non-Wetland Water 6

RWQCB non-wetland boundaries (NWW-6) are the same boundaries defined for NWW-6 described in Section 6.2 above.

Non-Wetland Water 7

RWQCB non-wetland boundaries (NWW-7) are the same boundaries defined for NWW-7 described in Section 6.2 above.

6.5 CDFW Streambed and Associated Riparian and Wetland Habitats

Figure 6C displays the estimated extent of streambed within the review area, delineated based on the top of the channel banks; Table 9 provides additional details.

Carroll Canyon Creek: Unvegetated Streambed, Vegetated Streambed, and Associated Riparian Habitat

Carroll Canyon Creek starts as a vegetated streambed composed of southern willow scrub – disturbed and Arundo, then transitions to an unvegetated (concrete-lined) streambed, before again transitioning to a vegetated streambed composed of southern arroyo willow riparian forest and Arundo with some unvegetated portions composed of open water (Figure 6C; Table 9; Appendix E, Photos 1, 4 – 6). Riparian habitat observed as directly associated with the delineated Carroll Canyon Creek streambed includes Arundo, southern arroyo willow riparian forest, southern willow scrub, and southern willow scrub – disturbed (Figure 6C; Appendix E, Photos 2, 3, and 7). See Table 9 for the estimated extent of CDFW jurisdiction for this feature.

Peñasquitos Creek/Lagoon: Unvegetated Streambed, Vegetated Streambed, and Associated Riparian Habitat

Peñasquitos Creek/Lagoon is an unvegetated and heavily vegetated streambed that travels on site as a channelized feature before converging with Carroll Canyon Creek, and continuing northwest as it transitions to a non-tidal lagoon area (Figure 6C; Table 9; Appendix E, Photos 8, 10 – 12, 14 – 17, 19 – 23, 27 – 29). Continuing northwest, Peñasquitos Creek/Lagoon narrows and transitions to a tidally-influenced lagoon area that receives flows from the Pacific Ocean before continuing off site.

Peñasquitos Creek/Lagoon is composed of the following vegetation communities: alkali meadow, alkali seep, Arundo, coastal and valley freshwater marsh, coastal and valley freshwater marsh – disturbed, coastal brackish marsh, Diegan coastal sage scrub, Diegan coastal sage scrub – disturbed, developed, disturbed habitat, disturbed habitat – coastal wattle, iceplant, mule fat scrub, non-native grassland, open water, pampas grass, saltplan/mudlfats, southern arroyo willow riparian forest, southern coastal salt marsh, southern coastal salt marsh – degraded, southern willow scrub, southern willow scrub – disturbed, and tamarisk. Riparian habitat observed as directly associated with the delineated Peñasquitos Creek/Lagoon streambed includes Arundo, southern arroyo willow riparian forest, and southern willow scrub – disturbed (Figure 6C). See Table 9 for the estimated extent of CDFW jurisdiction for this feature.

Non-Wetland Water 1: Vegetated Streambed

NWW-1 is a vegetated streambed composed of disturbed wetland (Figure 6C; Table 9; Appendix E, Photos 30 and 32). NWW-1 originates at a culvert south of Dunhill Street, as shown on Figure 6C, generally flows east/northeast, and travels for approximately 433 linear feet before entering a culvert. See Table 9 for the estimated extent of CDFW jurisdiction for this feature.

Non-Wetland Water 2: Vegetated Streambed

NWW-2 is a sparsely vegetated streambed within an area of blue elderberry series (Figure 6C; Table 9). NWW-2 enters the review area then travels north for approximately 43 linear feet before

entering a culvert that continues under the adjacent road. The area adjacent to the culvert north of the road was heavily vegetated and no evidence of a streambed was observed. See Table 9 for the estimated extent of CDFW jurisdiction for this feature.

Non-Wetland Water 3: Vegetated Streambed and Associated Riparian Habitat

NWW-3 is a sparsely vegetated streambed within an area of Diegan coastal sage scrub and southern willow scrub (Figurs 6C; Table 9; Appendix E, Photos 33 and 35). NWW-3 enters the review area then travels northwest for approximately 334 linear feet before dissipating at the trail/foot path. Riparian habitat observed as directly associated with the delineated NWW-3 streambed includes southern willow scrub (Figure 6C; Appendix E, Photo 32). See Table 9 for the estimated extent of CDFW jurisdiction for this feature.

Non-Wetland Water 4: Unvegetated Streambed and Associated Riparian Habitat

NWW-4 is an unvegetated streambed within an area of southern willow scrub, developed, and non-vegetated channel, between Sorrento Valley Road and the railroad tracks (Figure 6C; Table 9; Appendix E, Photo 37). NWW-4 travels for approximately 301 linear feet and likely connects to Peñasquitos Creek/Lagoon via a culvert under the railroad tracks, although due to restricted access and high water, this could not be confirmed. Riparian habitat observed as directly associated with the delineated NWW-4 streambed includes southern willow scrub (Figure 6C). See Table 9 for the estimated extent of CDFW jurisdiction for this feature.

Non-Wetland Water 5: Vegetated Streambed and Associated Riparian Habitat

NWW-5 is a heavily vegetated streambed that occurs within an area of mule fat scrub and disturbed habitat (Figure 6C; Table 9; Appendix E, Photo 38). Specifically, NWW-5 enters the review area then travels south for approximately 57 linear feet before dissipating at Sorrento Valley Road. Riparian habitat observed as directly associated with the delineated NWW-5 streambed includes mule fat scrub (Figure 6C). See Table 9 for the estimated extent of CDFW jurisdiction for this feature.

6.6 Other Features

Field staff did not observe additional areas with potential aquatic resource indicators, including swales or other areas showing evidence of drainage, ponding, or flow patterns. Data collected for the features discussed in Sections 6.1, 6.2, 6.3, 6.4, and 6.5 define the extent of aquatic resource and upland areas within the review area.

7 Deviation from NWI and NHD

The delineated extents of NWW-W-1A, NWW-1B, NWW-1C, NWW-W-1D, NWW-W-2A, NWW-2B, NWW-W-3, NWW-4, NWW-5, NWW-6, NWW-7, and W-1 generally occur within the areas mapped by USGS NHD and by USFWS NWI as shown on Figures 2 and 4, respectively.

8 Results and Conclusions

The results provided in this section include the extent of delineated aquatic resources within the review area based on desktop analysis and observed field indicators of potential waters of the U.S./State and CDFW streambed and associated wetland and/or riparian habitat per the methodologies discussed in Section 3.

This section, however, does not analyze the Corps' jurisdictional status of the delineated features per the current regulations, guidance, and standard operating procedures.

8.1 Corps

NWW-W-1A, NWW-1B, NWW-1C, NWW-W-1D, NWW-W-2A, NWW- 2B, NWW-W-3, NWW-4, NWW-5, NWW-6, and NWW-7 displayed various indicators of an OHWM (Table 6). NWW-1B, NWW-1C, NWW-2B, NWW-4, NWW-5, NWW-6, and NWW-7 did not meet the three federal wetland parameters. W-1, NWW-W-1A, NWW-W-1D, NWW-W-2A, and NWW-W-3 did meet the three federal wetland parameters; however, based on guidance provided by the Corps, wetlands within an OHWM constitute potential non-wetland waters of the U.S. Therefore, NWW-W-1A, NWW-1B, NWW-1C, NWW-W-1D, NWW-W-2A, NWW-2B, NWW-W-3, NWW-4, NWW-5, NWW-6, and NWW-7 are potential non-wetland waters of the U.S. and W-1 is a potential wetland waters of the U.S.

Approximately 161.84 acres (19,676 linear feet) of potential non-wetland waters of the U.S. associated with NWW-W-1A, NWW-1B, NWW-1C, NWW-W-1D, NWW-W-2A, NWW-2B, NWW-W-3, NWW-4, NWW-5, NWW-6, and NWW-7 occur within the review area, as further detailed in Table 6 and as shown on Figure 6A. Approximately 2.30 acres of potential wetland waters of the U.S. associated with W-1 occur within the review area, as further detailed in Table 6 and as shown on Figure 6A. Approximately 5.72 acres of RHA Section 10 tidal waters of the U.S. associated with NWW-W-2A and NWW-2B and 10.63 acres of CWA Section 404 tidal waters of the U.S. associated with NWW-W-2A and NWW-2B occur within the review area, as further detailed in Table 7 and as shown on Figure 6A. RHA Section 10 navigability may extend to the I-5 based on a previous 1986 determination (U.S. Coast Guard 1986), as further detailed in Table 7. The ORM Bulk Upload Aquatic Resources or Consolidated Excel spreadsheet is included as Appendix G.

Table 6. Aquatic Resource Summary Table: Corps

Aquatic Resource Name	Cowardin Code[1]	Active Channel Width Range (Feet)	Observed OHWM Indicators[2]	Observed Wetland Parameters[3]	Presence of OHWM/ Wetland	Dominant Vegetation[4]	Location (lat, long)	Total Acre(s)[5]	Total Linear Feet
NWW-W-1A	PFO	40 – 59	CAST, CVS, CVC, BBS; See NWW-1C/ODP 2[6]	HV, HS, WH; See WDP 1	Yes/Yes	Southern Willow Scrub – Disturbed; See WDP 1	32.897353, -117.220264	0.18	179
NWW-1B	R5	48 – 66	WS; See ODP 1	N/A[7]	Yes/No	Non-vegetated Channel	32.899513, -117.222353	2.60	1,748
NWW-1C	R5	5 – 23	CAST, CVS, CVC,	N/A[8]	Yes/No	Open Water	32.903997, -117.226914	0.40	1,552

Aquatic Resource Name	Cowardin Code[1]	Active Channel Width Range (Feet)	Observed OHWM Indicators[2]	Observed Wetland Parameters[3]	Presence of OHWM/ Wetland	Dominant Vegetation[4]	Location (lat, long)	Total Acre(s)[5]	Total Linear Feet
			BBS; See ODP 2[6]						
NWW-W-1D	PFO	1 – 30	CAST, CVS, CVC, BBS; See ODP 2[6]	HV, HS, WH; See WDP 4	Yes/Yes	Southern Arroyo Willow Riparian Forest; See WDP 4	32.903845, -117.226712	0.66	27
NWW-W-2A	PEM	34 – 1,300	CAST, CVS, CVC, BBS; See ODP 3, 4, and 9	HV, HS, WH; See WDP 6, 8, 10–13, 15–18, 20	Yes/Yes	Southern Coastal Salt Marsh – Degraded/Southern Arroyo Willow Riparian Forest; See WDP 6, 8, 10 – 13, 15 – 18, 20	32.915648, -117.239302	147.63	6,182
NWW-2B	E1	5 – 105	CAST, CVS, CVC, BBS; See ODP 3, 4, and 9	HV; See WDP 29	Yes/No	Open Water	32.923104, -117.248113	10.06	8,818
NWW-W-3	R4	15 – 15	CVS, CVC, BBS; See ODP 5	HV, HS, WH; See WDP 23	Yes/Yes	Disturbed Wetland; See WDP 23	32.903176, -117.228164	0.15	433
NWW-4	R6	3 – 5	CAST, CVS, CVC, BBS; See NWW-5/ODP 7[6]	None; See NWW-5/ WDP 26[9]	Yes/No	Blue Elderberry Series	32.911364, -117.237226	<0.01	43
NWW-5	R6	2 – 8	CAST, CVS, CVC, BBS; See ODP 6 and 7	None; See WDP 26	Yes/No	Southern Willow Scrub; See WDP 26	32.912130, -117.239132	0.05	334
NWW-6	R4	14 – 20	CAST, CVS, CVC, BBS; See ODP 8	None; See NWW-5/ WDP 26[9]	Yes/No	Southern Willow Scrub; See ODP 8	32.916108, -177.237276	0.11	301
NWW-7	R6	3 – 3	CAST, CVS, CVC, BBS; See NWW-5/ODP 7[6]	None; See WDP 28	Yes/No	Mule Fat Scrub; See WDP 28	32.917504, -117.237997	<0.01	57
W-1	E2EM	N/A	N/A	HV, HS, WH; See WDP 21	No/Yes	Southern Coastal Salt Marsh; See WDP 21	32.925026, -117.248837	2.30	N/A[10]
							Total	164.14	19,676

[1] Dominant Cowardin code utilized to represent each feature based on field observations and available data.
[2] OHWM Indicators: CAST = Change in average sediment texture; CVS = Change in vegetation species; CVC = Change in vegetation cover; BBS = Break in bank slope; WS = Water staining
[3] Wetland Indicators: HV = Hydrophytic vegetation; HS = Hydric soil; WH = Wetland hydrology
[4] See Figure 6 for all vegetation communities present within each aquatic resource.
[5] Acreages summed using raw numbers provided during GIS analysis (available upon request) and thus the sum of the total rounded numbers may not directly add up in this table.
[6] Based on a representative ODP taken within an aquatic resource with similar conditions.
[7] Feature concrete-lined with no accumulated sediments.
[8] Feature composed of open water habitat.
[9] Based on a representative WDP taken within an aquatic resource with similar conditions.
[10] Linear feet not calculated for individual aquatic resource to avoid redundant linear foot calculation where aquatic resources overlap.

Table 7. RHA Section 10 and CWA Section 404 Summary Table

Aquatic Resource Name	RHA Section 10 Tidal Waters to MHW (Acres)	CWA Section 404 Tidal Waters to HTL (Acres)[1]	RHA Section 10 Navigable Waters of the U.S. (Acre[s])[2]	CWA Section 404 Non-Tidal Waters (Acres)[1]
NWW-W-1A	N/A	N/A	N/A	0.18
NWW-1B	N/A	N/A	0.29	2.60
NWW-1C	N/A	N/A	0.40	0.40
NWW-W-1D	N/A	N/A	0.66	0.66
NWW-W-2A	1.56	5.44	147.63	142.19
NWW-2B	4.16	5.19	10.06	4.88
NWW-W-3	N/A	N/A	N/A	0.15
NWW-4	N/A	N/A	N/A	<0.01
NWW-5	N/A	N/A	N/A	0.05
NWW-6	N/A	N/A	N/A	0.11
NWW-7	N/A	N/A	N/A	<0.01
W-1	N/A	N/A	2.30	2.30
Total	5.72	10.63	161.34	153.50

[1] Acreages calculated using raw numbers provided during GIS analysis (available upon request) and thus the sum of the total rounded numbers between CWA Section 404 Tidal Waters and CWA Section 404 Non-Tidal Waters may not directly add up to the total acreage provided for each aquatic resource in Table 7.
[2] RHA Section 10 navigability may extend to the I-5 based on a previous 1986 determination (U.S. Coast Guard 1986); the Corps will make the final determination regarding RHA Section 10 jurisdictional limits.

8.2 RWQCB

NWW-W-1A, NWW-1B, NWW-1C, NWW-W-1D, NWW-W-2A, NWW-2B, NWW-W-3, NWW-4, NWW-5, NWW-6, and NWW-7 displayed various indicators of an OHWM (Table 8). NWW-1B, NWW-1C, NWW-2A, NWW-4, NWW-5, NWW-6, and NWW-7 did not meet the three federal/State wetland

parameters; however, W-1, NWW-W-1A, NWW-W-1D, NWW-W-2A, and NWW-W-3 did meet the three federal/State wetland parameters. As such, NWW-1B, NWW-1C, NWW-2B, NWW-4, NWW-5, NWW-6, and NWW-7 are non-wetland waters of the State; W-1, NWW-W-1A, NWW-W-1D, NWW-W-2A, and NWW-W-3 are wetland waters of the State.

Approximately 13.22 acres (12,854 linear feet) of non-wetland waters of the State associated with NWW-1B, NWW-1C, NWW-2B, NWW-4, NWW-5, NWW-6, and NWW-7 and 150.91 acres (6,821 linear feet) of wetland waters of the State associated with W-1, NWW-W-1A, NWW-W-1D, NWW-W-2A, and NWW-W-3 occur within the review area, as further detailed in Table 8 and as shown on Figure 6B.

Table 8. Aquatic Resource Summary Table: RWQCB

Aquatic Resource Name	Cowardin Code[1]	Active Channel Width Range (Feet)	Observed OHWM Indicators[2]	Observed Wetland Parameters[3]	Presence of OHWM/ Wetland	Dominant Vegetation[4]	Location (lat, long)	Total Acre(s)[5]	Total Linear Feet
NWW-W-1A	PFO	40 – 59	CAST, CVS, CVC, BBS; See NWW-1C/ODP 2[6]	HV, HS, WH; See WDP 1	Yes/Yes	Southern Willow Scrub – Disturbed; See WDP 1	32.897353, -117.220264	0.18	179
NWW-1B	R5	48 – 66	WS; See ODP 1	N/A[7]	Yes/No	Non-Vegetated Channel	32.899513, -117.222353	2.60	1,748
NWW-1C	R5	5 – 23	CAST, CVS, CVC, BBS; See ODP 2[6]	N/A[8]	Yes/No	Open Water	32.903997, -117.226914	0.40	1,552
NWW-W-1D	PFO	1 – 30	CAST, CVS, CVC, BBS; See ODP 2[6]	HV, HS, WH; See WDP 4	Yes/Yes	Southern Arroyo Willow Riparian Forest; See WDP 4	32.903845, -117.226712	0.66	27
NWW-W-2A	PEM	34 – 1,300	CAST, CVS, CVC, BBS; See ODP 3, 4, and 9	HV, HS, WH; See WDP 6, 8, 10–13, 15–18, 20	Yes/Yes	Southern Coastal Salt Marsh – Degraded/Southern Arroyo Willow Riparian Forest; See WDP 6, 8, 10 – 13, 15 – 18, 20	32.915648, -117.239302	147.63	6,182
NWW-2B	E1	5 – 105	CAST, CVS, CVC, BBS; See ODP 3, 4, and 9	HV; See WDP 29	Yes/No	Open Water	32.923104, -117.248113	10.06	8,818
NWW-W-3	R4	15 – 15	CVS, CVC, BBS; See ODP 5	HV, HS, WH; See WDP 23	Yes/Yes	Disturbed Wetland; See WDP 23	32.903176, -117.228164	0.15	433

Aquatic Resource Name	Cowardin Code[1]	Active Channel Width Range (Feet)	Observed OHWM Indicators[2]	Observed Wetland Parameters[3]	Presence of OHWM/ Wetland	Dominant Vegetation[4]	Location (lat, long)	Total Acre(s)[5]	Total Linear Feet
NWW-4	R6	3 – 5	CAST, CVS, CVC, BBS; See NWW-5/ODP 7[6]	None; See NWW-5/ WDP 26[9]	Yes/No	Blue Elderberry Series	32.911364, -117.237226	<0.01	43
NWW-5	R6	2 – 8	CAST, CVS, CVC, BBS; See ODP 6 and 7	None; See WDP 26	Yes/No	Southern Willow Scrub; See WDP 26	32.912130, -117.239132	0.05	334
NWW-6	R4	14 – 20	CAST, CVS, CVC, BBS; See ODP 8	None; See NWW-5/ WDP 26[9]	Yes/No	Southern Willow Scrub; See ODP 8	32.916108, -177.237276	0.11	301
NWW-7	R6	3 – 3	CAST, CVS, CVC, BBS; See NWW-5/ODP 7[6]	None; See WDP 28	Yes/No	Mule Fat Scrub; See WDP 28	32.917504, -117.237997	<0.01	57
W-1	E2EM	N/A	N/A	HV, HS, WH; See WDP 21	No/Yes	Southern Coastal Salt Marsh; See WDP 21	32.925026, -117.248837	2.30	N/A[10]
							Total	164.14	19,676

[1] Dominant Cowardin code utilized to represent each feature based on field observations and available data.
[2] OHWM Indicators: CAST = Change in average sediment texture; CVS = Change in vegetation species; CVC = Change in vegetation cover; BBS = Break in bank slope; WS = Water staining
[3] Wetland Indicators: HV = Hydrophytic vegetation; HS = Hydric soil; WH = Wetland hydrology
[4] See Figure 6 for all vegetation communities present within each aquatic resource.
[5] Acreages summed using raw numbers provided during GIS analysis (available upon request) and thus the sum of the total rounded numbers may not directly add up in this table.
[6] Based on a representative ODP taken within an aquatic resource with similar conditions.
[7] Feature concrete-lined with no accumulated sediments.
[8] Feature composed of open water habitat.
[9] Based on a representative WDP taken within an aquatic resource with similar conditions.
[10] Linear feet not calculated for individual aquatic resource to avoid redundant linear foot calculation where aquatic resources overlap.

8.3 CDFW

Peñasquitos Creek/Lagoon, Carroll Canyon Creek, NWW-1, NWW-2, NWW-3, NWW-4, and NWW-5 qualify as CDFW streambed with associated riparian habitat.

Approximately 161.35 acres (7,234 linear feet) of vegetated streambed, 10.74 acres (12,442 linear feet) of unvegetated streambed, and 1.31 acres of associated riparian habitat occur within the review area, as further detailed in Table 9 and as shown on Figure 6C.

Table 9. Aquatic Resource Summary Table: CDFW

Aquatic Resource Name	Aquatic Resource Type	Vegetation Community	Width Range[1] (Feet)	Location (lat, long)	Acre(s)	Linear Feet[2]
Carroll Canyon Creek	Vegetated Streambed	Arundo		32.903964, -117.226707	1.29	3,507
		Coastal and Valley Freshwater Marsh		32.902643, -117.225399	0.06	
		Southern Arroyo Willow Riparian Forest		32.904072, -117.226775	3.01	
		Southern Willow Scrub		32.898596, -117.221608	0.02	
		Southern Willow Scrub – Disturbed		32.897317, -117.220241	0.14	
	Unvegetated Streambed	Developed		32.901324, -117.224107	0.08	
		Disturbed Habitat		32.897604, -117.220368	<0.01	
		Non-vegetated Channel		32.899613, -117.222451	3.14	
		Open Water		32.903997, -117.226914	0.40	
	Riparian Habitat[3]	Arundo	N/A	32.904258, -117.226893	0.04	–
		Southern Arroyo Willow Riparian Forest		32.904264, -117.226889	0.47	
		Southern Willow Scrub		32.898590, -117.221677	0.04	
		Southern Willow Scrub – Disturbed		32.897314, -117.220293	0.22	
Peñasquitos Creek/Lagoon	Vegetated Streambed	Alkali Meadow	35 – 1,290	32.919162, -117.244550	1.09	15,000
		Alkali Seep		32.912833, -117.236256	0.47	
		Arundo		32.909667, -117.232865	3.41	
		Coastal and Valley Freshwater Marsh		32.917602, -117.241215	11.29	
		Coastal and Valley Freshwater Marsh – Disturbed		32.923601, -117.246577	0.13	
		Coastal Brackish Marsh		32.911019, -117.234790	2.42	
		Diegan Coastal Sage Scrub		32.922617, -117.247373	3.11	
		Diegan Coastal Sage Scrub – Disturbed		32.921443, -117.246845	0.03	
		Disturbed Habitat – Coastal Wattle		32.927676, -117.250995	0.01	
		Iceplant		32.921224, -117.246628	0.36	

Aquatic Resource Name	Aquatic Resource Type	Vegetation Community	Width Range[1] (Feet)	Location (lat, long)	Acre(s)	Linear Feet[2]
		Mule Fat Scrub		32.915760, -117.238936	12.22	
		Non-native Grassland		32.921252, -117.245655	2.84	
		Pampas Grass		32.913228, -117.235746	0.44	
		Southern Arroyo Willow Riparian Forest		32.912283, -117.235519	61.99	
		Southern Coastal Salt Marsh		32.921523, -117.246074	12.93	
		Southern Coastal Salt Marsh – Degraded		32.918989, -117.243157	41.26	
		Southern Willow Scrub		32.921782, -117.245227	2.49	
		Southern Willow Scrub – Disturbed		32.905979, -117.229469	0.01	
		Tamarisk		32.918331, -117.243062	0.06	
	Unvegetated Streambed	Developed		32.924396, -117.247414	0.08	
		Disturbed Habitat		32.923189, -117.246077	<0.01	
		Open Water		32.924767, -117.249819	6.52	
		Saltpan/Mudflats		32.920823, -117.245432	0.42	
	Riparian Habitat[3]	Arundo	N/A	32.906382, -117.230556	0.01	–
		Southern Arroyo Willow Riparian Forest		32.905921, -117.229522	0.05	
		Southern Willow Scrub – Disturbed		32.905970, -117.229488	0.01	
NWW-1	Vegetated Streambed	Disturbed Wetland	19 – 19	32.903173, -117.228178	0.19	433
NWW-2	Vegetated Streambed	Blue Elderberry Series	5 – 10	32.911368, -117.237226	0.01	43
NWW-3	Vegetated Streambed	Diegan Coastal Sage Scrub	3 – 12	32.912125, -117.239132	0.04	334
		Southern Willow Scrub		32.912143, -117.239136	0.04	
	Riparian Habitat[3]	Southern Willow Scrub	N/A	32.912118, -117.239160	0.16	–
NWW-4	Unvegetated Streambed	Developed	11 – 11	32.916151, -117.237348	0.01	301
		Non-vegetated Channel		32.916366, -117.237555	0.01	

Aquatic Resource Name	Aquatic Resource Type	Vegetation Community	Width Range[1] (Feet)	Location (lat, long)	Acre(s)	Linear Feet[2]
		Southern Willow Scrub[4]		32.916091, -117.237259	0.10	
	Riparian Habitat[3]	Southern Willow Scrub	N/A	32.916299, -117.237395	0.30	–
NWW-5	Vegetated Streambed	Mule Fat Scrub	3 – 3	32.917536, -117.237994	<0.01	57
	Unvegetated Streambed	Disturbed Habitat		32.917457, -117.238002	<0.01	
	Riparian Habitat[3]	Mule Fat Scrub	N/A	32.917544, -117.238000	0.02	–
				Total[5]	173.41	19,676

[1] Corresponds with the approximate stream bank widths observed during delineation. Width range accounts for entirety of streambed delineated, not individual vegetation communities.
[2] Linear feet not calculated for individual aquatic resource type and vegetation community (including riparian habitat that occurs outside of delineated streambed) to avoid redundant linear foot calculation where such areas overlap.
[3] Occurs outside of delineated streambed.
[4] Unvegetated streambed within mapped southern willow scrub vegetation community; however, no vegetation technically present within the streambed.
[5] Acreages and linear feet totals were summed using raw numbers provided during GIS analysis (available upon request) and thus the sum of the total rounded numbers may not directly add up in this table.

8.4 Disclaimer Statement

The aquatic resources acreages and linear feet estimated in this section represent the existing conditions during the time of the field surveys. Please note that the applicable agencies will make final jurisdictional determinations. RBC recommends early coordination with the resource agencies to determine the final jurisdictional boundaries, applicable permitting processes, compensatory mitigation requirements, and other potential permitting issues specific to the proposed work within the review area. Agency representatives may request to access the site to field-verify the results of this ARDR with the applicant, or a designated representative.

The information provided in this report should remain valid for up to five years from the date of the field effort for the jurisdictional delineation unless site conditions change substantially, or a regulatory agency requires an updated report.

9 Contact Information

Applicant:

Stephanie Bracci

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Engineering and Capital Projects Department

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619-533-3629

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Rocks Biological Consulting

4312 Rialto Street

San Diego, CA 92107

shanti@rocksbio.com

619-674-8067

Agency access to the review area can be coordinated with the applicant and/or agent upon request.

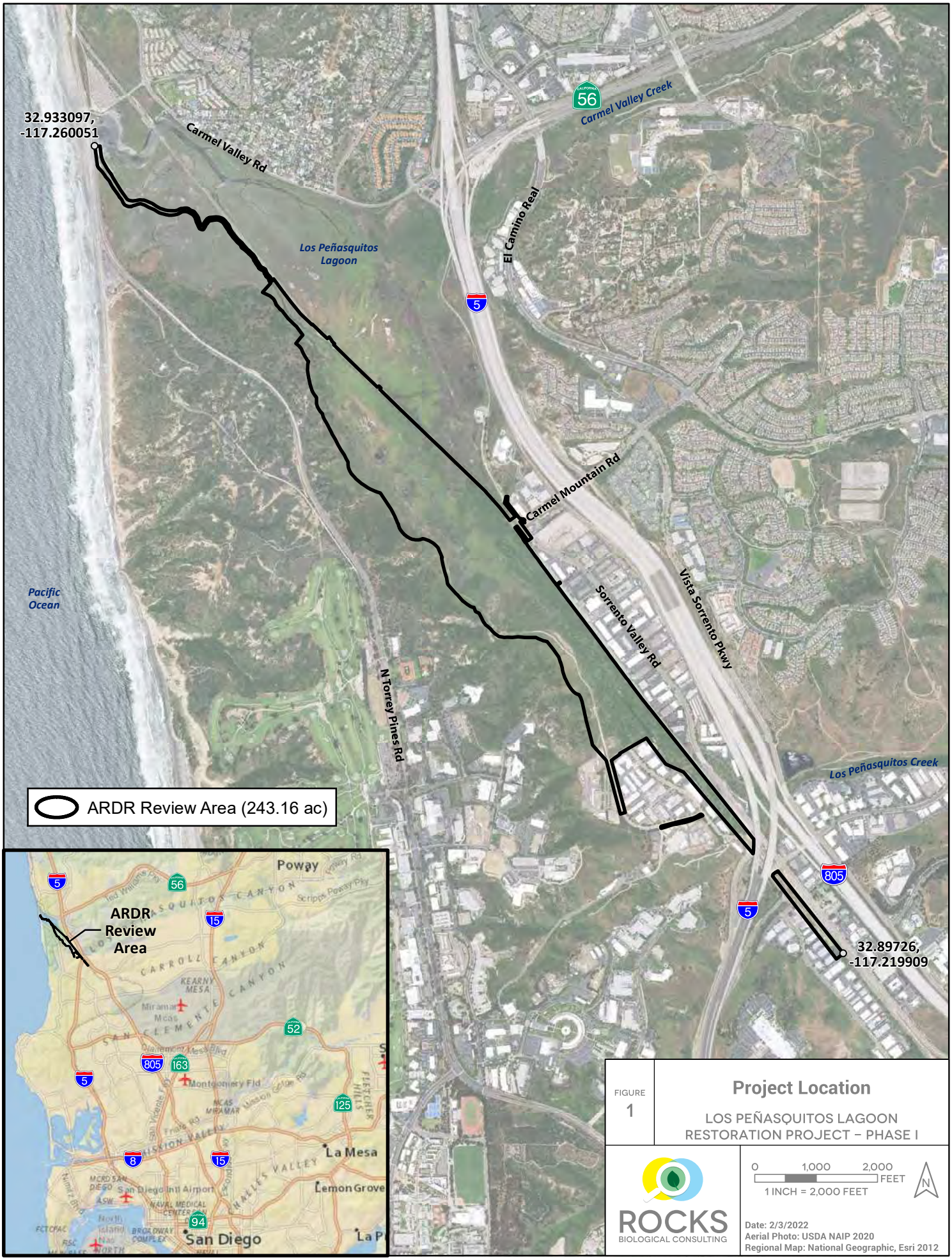


FIGURE 1

Project Location

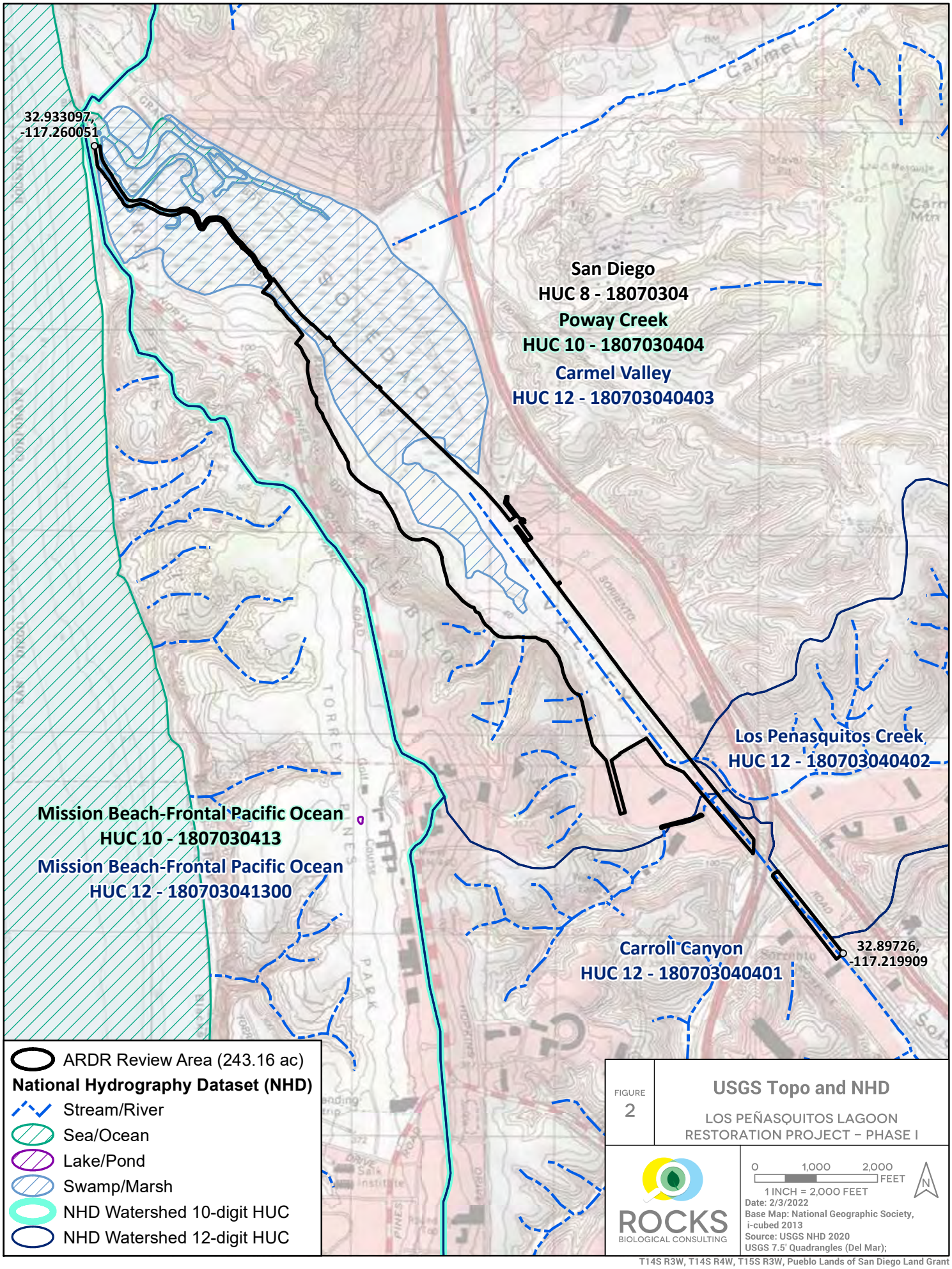
LOS PEÑASQUITOS LAGOON RESTORATION PROJECT – PHASE I

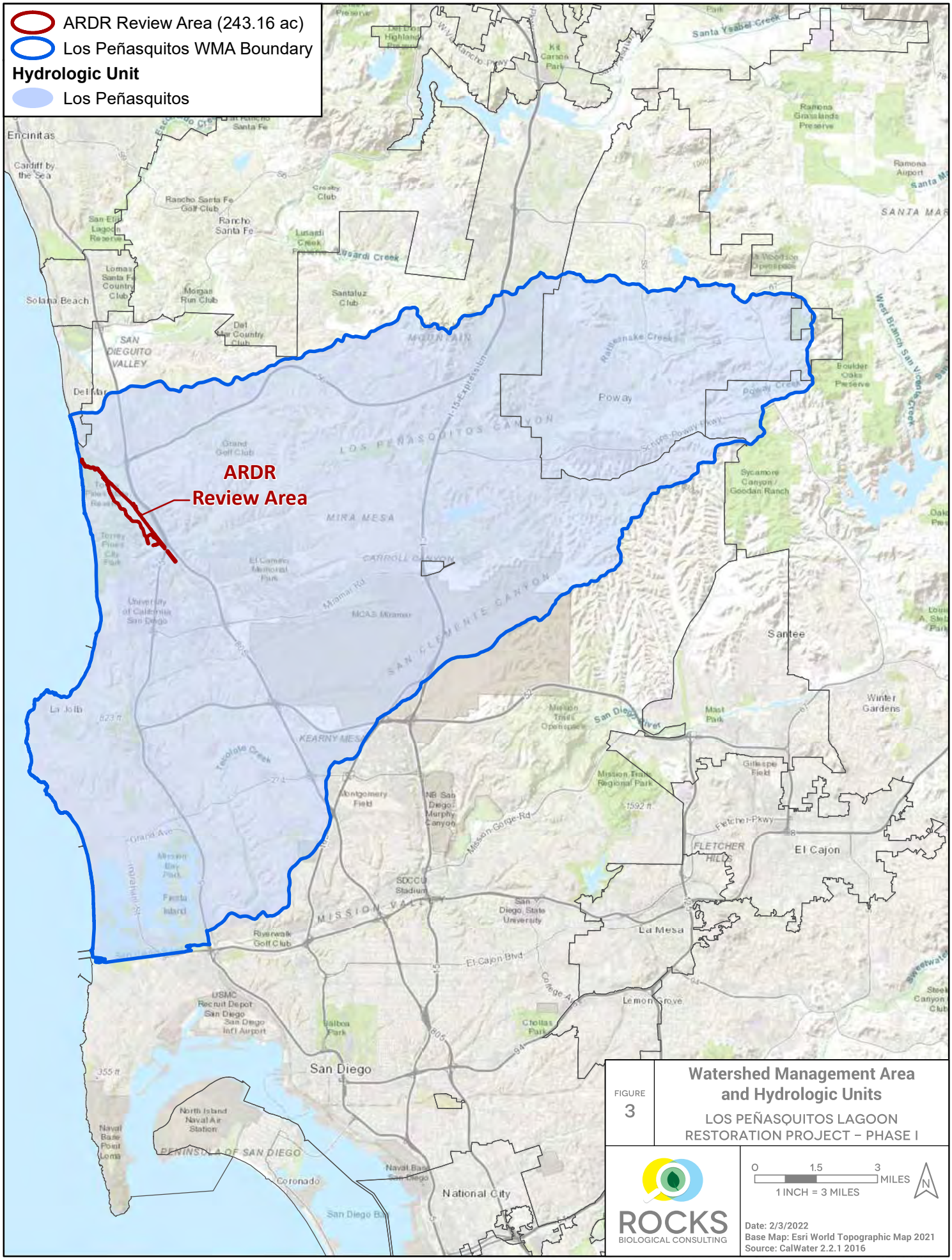
ROCKS BIOLOGICAL CONSULTING

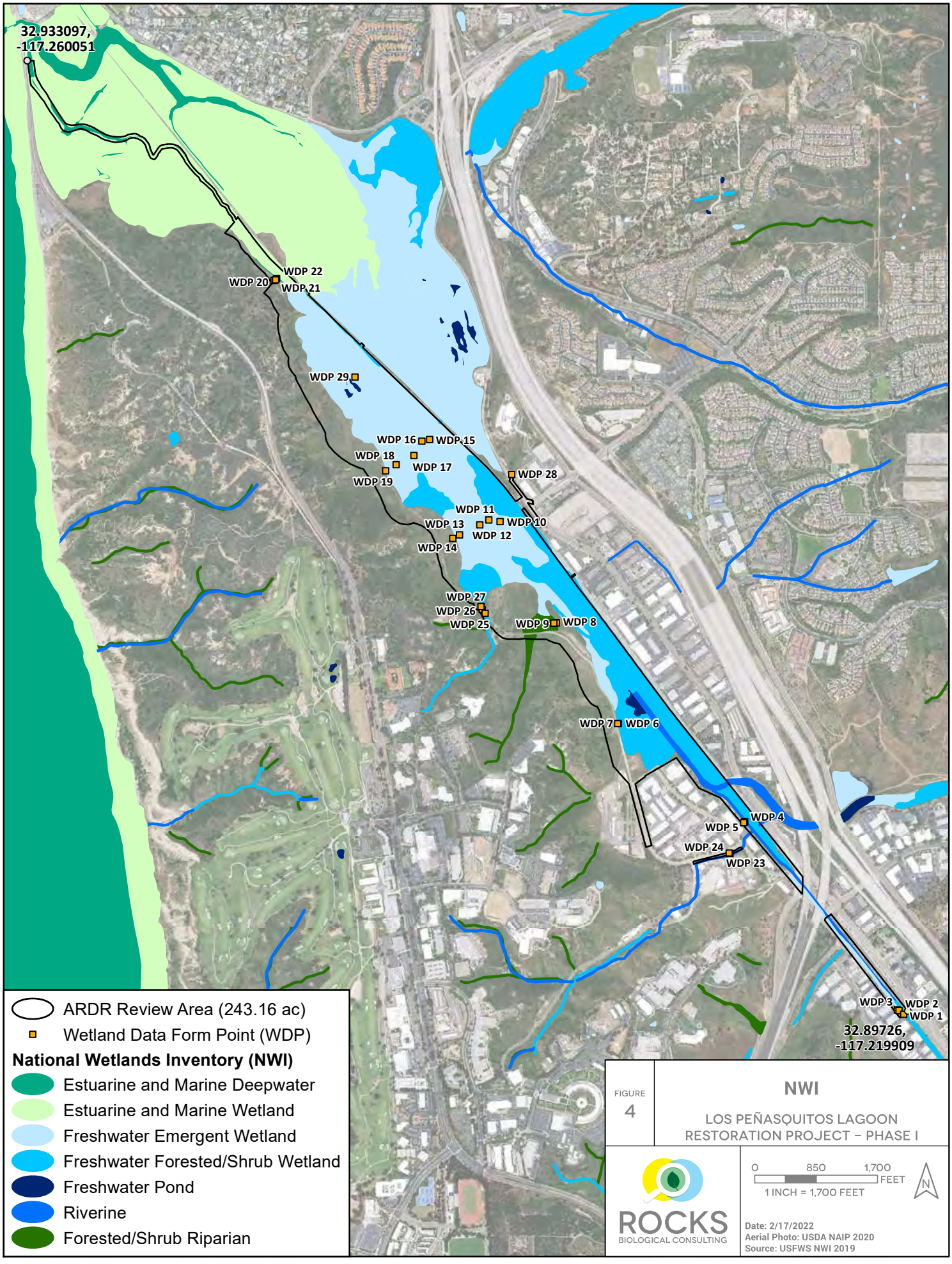
0 1,000 2,000 FEET

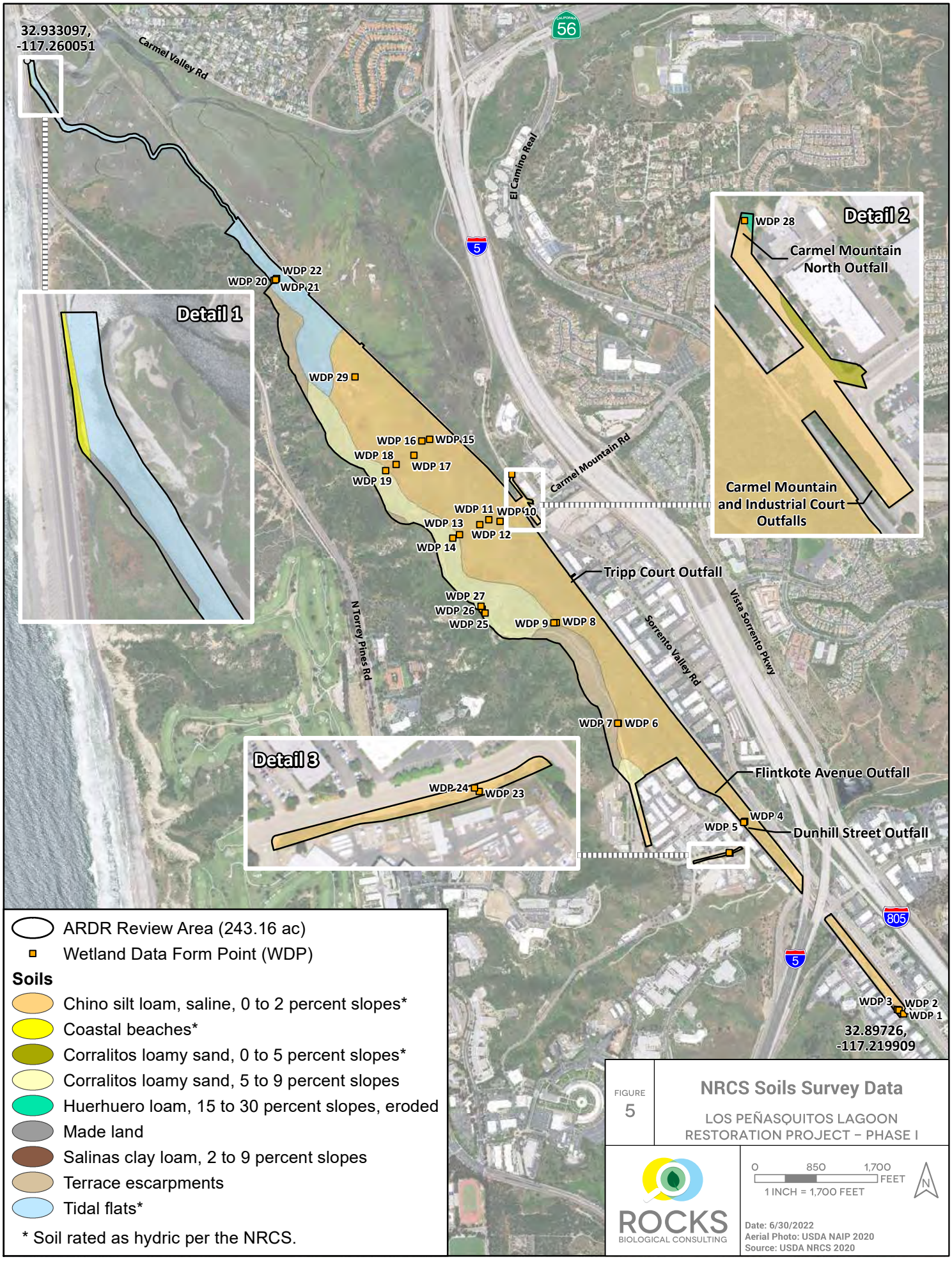
1 INCH = 2,000 FEET

Date: 2/3/2022
Aerial Photo: USDA NAIP 2020
Regional Map: National Geographic, Esri 2012


32.933097,
-117.260051
San Diego
HUC 8 - 18070304
Poway Creek
HUC 10 - 1807030404
Carmel Valley
HUC 12 - 180703040403
Los Penasquitos Creek
HUC 12 - 180703040402
Mission Beach-Frontal Pacific Ocean
HUC 10 - 1807030413
Mission Beach-Frontal Pacific Ocean
HUC 12 - 180703041300
Carroll Canyon
HUC 12 - 180703040401
32.89726,
-117.219909
ARDR Review Area (243.16 ac)
National Hydrography Dataset (NHD)
Stream/River
Sea/Ocean
Lake/Pond
Swamp/Marsh
NHD Watershed 10-digit HUC
NHD Watershed 12-digit HUC
FIGURE
2
USGS Topo and NHD
LOS PEÑASQUITOS LAGOON
RESTORATION PROJECT – PHASE I
ROCKS
BIOLOGICAL CONSULTING
0 1,000 2,000 FEET
1 INCH = 2,000 FEET
Date: 2/3/2022
Base Map: National Geographic Society, i-cubed 2013
Source: USGS NHD 2020
USGS 7.5' Quadrangles (Del Mar);
T14S R3W, T14S R4W, T15S R3W, Pueblo Lands of San Diego Land Grant


ARDR Review Area (243.16 ac)
Los Peñasquitos WMA Boundary
Hydrologic Unit
Los Peñasquitos
ARDR
Review Area
Watershed Management Area and Hydrologic Units
LOS PEÑASQUITOS LAGOON RESTORATION PROJECT – PHASE I
FIGURE 3
ROCKS BIOLOGICAL CONSULTING
0 1.5 3 MILES
1 INCH = 3 MILES
Date: 2/3/2022
Base Map: Esri World Topographic Map 2021
Source: CalWater 2.2.1 2016


32.933097,
-117.260051
WDP 22
WDP 20
WDP 21
WDP 29
WDP 16
WDP 15
WDP 18
WDP 17
WDP 19
WDP 28
WDP 11
WDP 13
WDP 10
WDP 12
WDP 14
WDP 27
WDP 26
WDP 25
WDP 9
WDP 8
WDP 7
WDP 6
WDP 4
WDP 5
WDP 24
WDP 23
WDP 3
WDP 2
WDP 1
32.89726,
-117.219909
ARDR Review Area (243.16 ac)
Wetland Data Form Point (WDP)
National Wetlands Inventory (NWI)
Estuarine and Marine Deepwater
Estuarine and Marine Wetland
Freshwater Emergent Wetland
Freshwater Forested/Shrub Wetland
Freshwater Pond
Riverine
Forested/Shrub Riparian
FIGURE
4
NWI
LOS PEÑASQUITOS LAGOON
RESTORATION PROJECT – PHASE I
ROCKS
BIOLOGICAL CONSULTING
0
850
1,700
FEET
1 INCH = 1,700 FEET
N
Date: 2/17/2022
Aerial Photo: USDA NAIP 2020
Source: USFWS NWI 2019


32.933097,
-117.260051
Carmel Valley Rd
El Camino Real
Detail 1
Detail 2
Detail 3
WDP 28
Carmel Mountain
North Outfall
Carmel Mountain
and Industrial Court
Outfalls
WDP 22
WDP 20
WDP 21
WDP 29
WDP 16
WDP 15
WDP 18
WDP 17
WDP 19
Carmel Mountain Rd
WDP 11
WDP 10
WDP 13
WDP 12
WDP 14
Tripp Court Outfall
WDP 27
WDP 26
WDP 25
WDP 9
WDP 8
N Torrey Pines Rd
Sorrento Valley Rd
Vista Sorrento Pkwy
WDP 7
WDP 6
WDP 24
WDP 23
Flintkote Avenue Outfall
WDP 4
WDP 5
Dunhill Street Outfall
WDP 3
WDP 2
WDP 1
32.89726,
-117.219909
ARDR Review Area (243.16 ac)
Wetland Data Form Point (WDP)
Soils
Chino silt loam, saline, 0 to 2 percent slopes*
Coastal beaches*
Corralitos loamy sand, 0 to 5 percent slopes*
Corralitos loamy sand, 5 to 9 percent slopes
Huerhuero loam, 15 to 30 percent slopes, eroded
Made land
Salinas clay loam, 2 to 9 percent slopes
Terrace escarpments
Tidal flats*
* Soil rated as hydric per the NRCS.
FIGURE
5
NRCS Soils Survey Data
LOS PEÑASQUITOS LAGOON
RESTORATION PROJECT – PHASE I
ROCKS
BIOLOGICAL CONSULTING
0
850
1,700
FEET
1 INCH = 1,700 FEET
N
Date: 6/30/2022
Aerial Photo: USDA NAIP 2020
Source: USDA NRCS 2020

ARDR Review Area (243.16 ac)

Photo Point

Culvert

Wetland Data Form Point (WDP)

OHWM Datasheet Point (ODP)

Flow Direction

Corps Aquatic Resources

Non-Wetland Waters - Federal Wetland (148.62 ac)*

Non-Wetland Waters - Concrete-Lined (2.60 ac)

* Three-parameter wetland within OHWM.

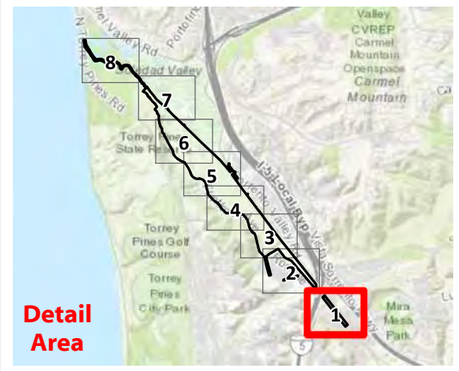


FIGURE 6A

PAGE 1 OF 8

Corps Aquatic Resources

LOS PEÑASQUITOS LAGOON RESTORATION PROJECT – PHASE I

ROCKS BIOLOGICAL CONSULTING

0 100 200 FEET

1 INCH = 200 FEET

N

Date: 3/1/2022

Aerial Photo: Nearmap, 2021

- ARDR Review Area (243.16 ac)
- Photo Point
- Culvert
- Wetland Data Form Point (WDP)
- OHWM Datasheet Point (ODP)
- Flow Direction

Corps Aquatic Resources

- Non-Wetland Waters - Federal Wetland (148.62 ac)*
- Non-Wetland Waters (11.82 ac)
- Non-Wetland Waters - Concrete-Lined (2.60 ac)

* Three-parameter wetland within OHWM.

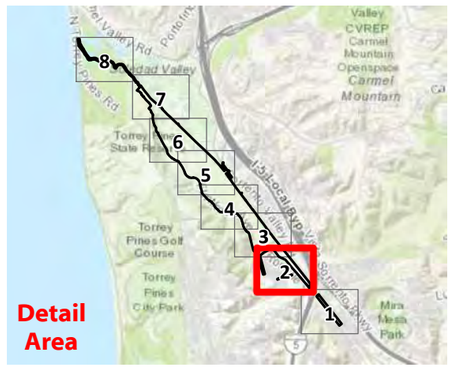


FIGURE 6A

PAGE 2 OF 8

Corps Aquatic Resources

LOS PEÑASQUITOS LAGOON RESTORATION PROJECT – PHASE I

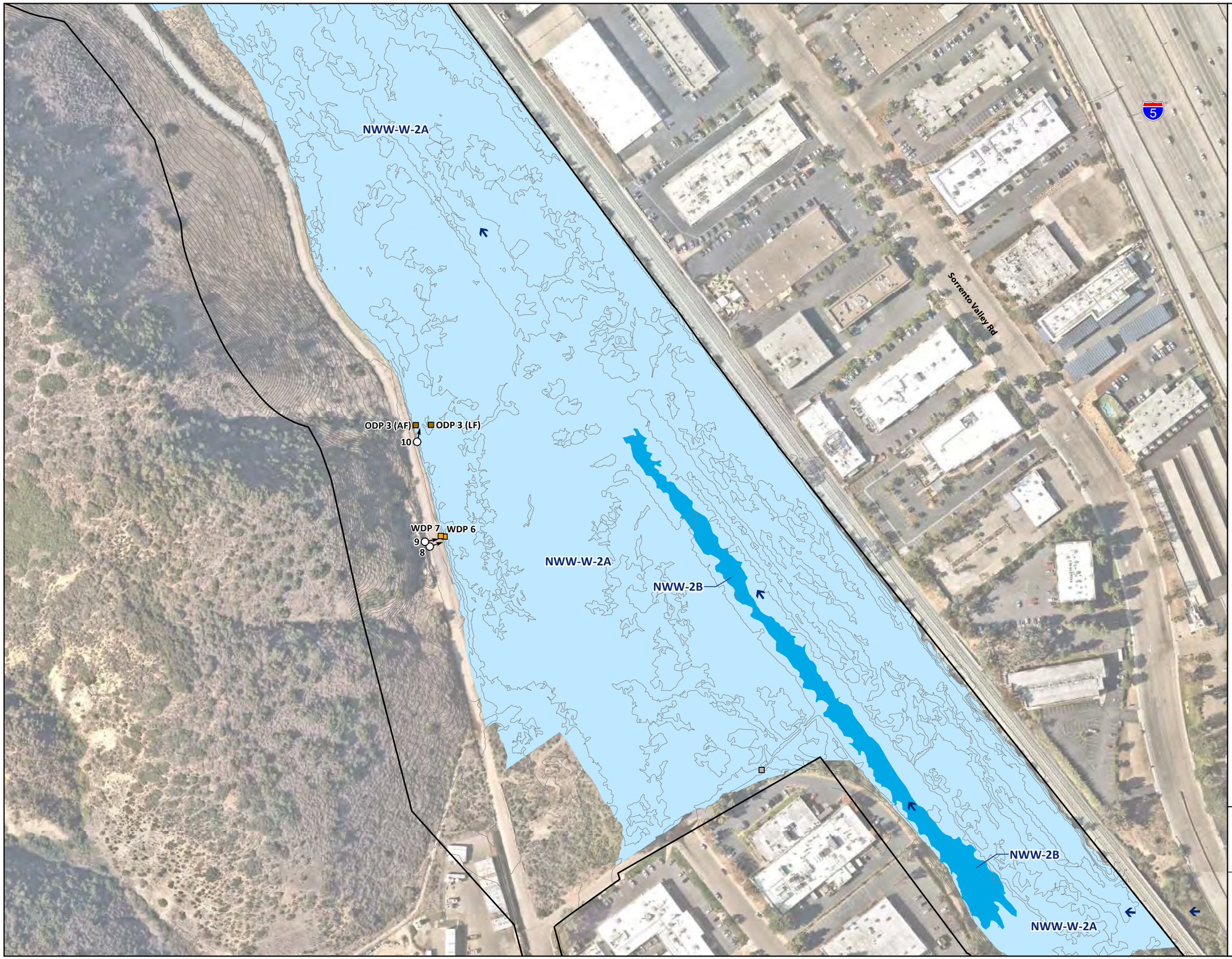
ROCKS BIOLOGICAL CONSULTING

0 100 200 FEET

1 INCH = 200 FEET

Date: 3/1/2022

Aerial Photo: Nearmap, 2021



- ARDR Review Area (243.16 ac)
- Photo Point
- Culvert
- Wetland Data Form Point (WDP)
- OHWM Datasheet Point (ODP)
- Flow Direction

Corps Aquatic Resources

- Non-Wetland Waters - Federal Wetland (148.62 ac)*
- Non-Wetland Waters (11.82 ac)

* Three-parameter wetland within OHWM.

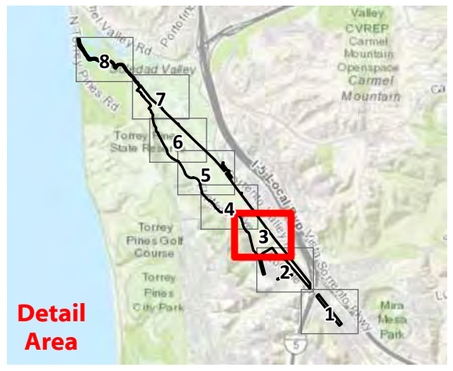


FIGURE 6A

PAGE 3 OF 8

Corps Aquatic Resources

LOS PEÑASQUITOS LAGOON RESTORATION PROJECT – PHASE I

ROCKS BIOLOGICAL CONSULTING

0 100 200 FEET

1 INCH = 200 FEET

Date: 3/1/2022

Aerial Photo: Nearmap, 2021

NWW-2B
NWW-2B
NWW-W-2A
NWW-W-2A
NWW-W-2A
Sorrento Valley Rd
WDP 27
36
35
WDP 26
ODP 7
34
WDP 25
NWW-5
ODP 6
33
13
WDP 9
WDP 8
12
NWW-4
11

ARDR Review Area (243.16 ac)
Photo Point
Culvert
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction

Corps Aquatic Resources

Non-Wetland Waters - Federal Wetland (148.62 ac)*
Non-Wetland Waters (11.82 ac)

* Three-parameter wetland within OHWM.

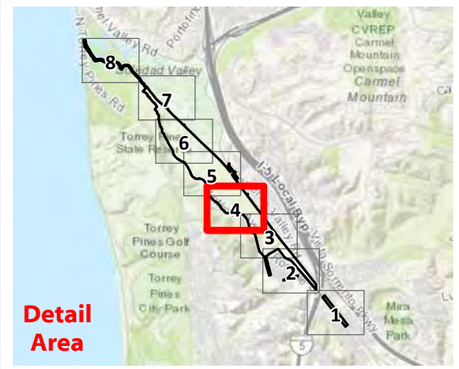


FIGURE 6A
PAGE 4 OF 8

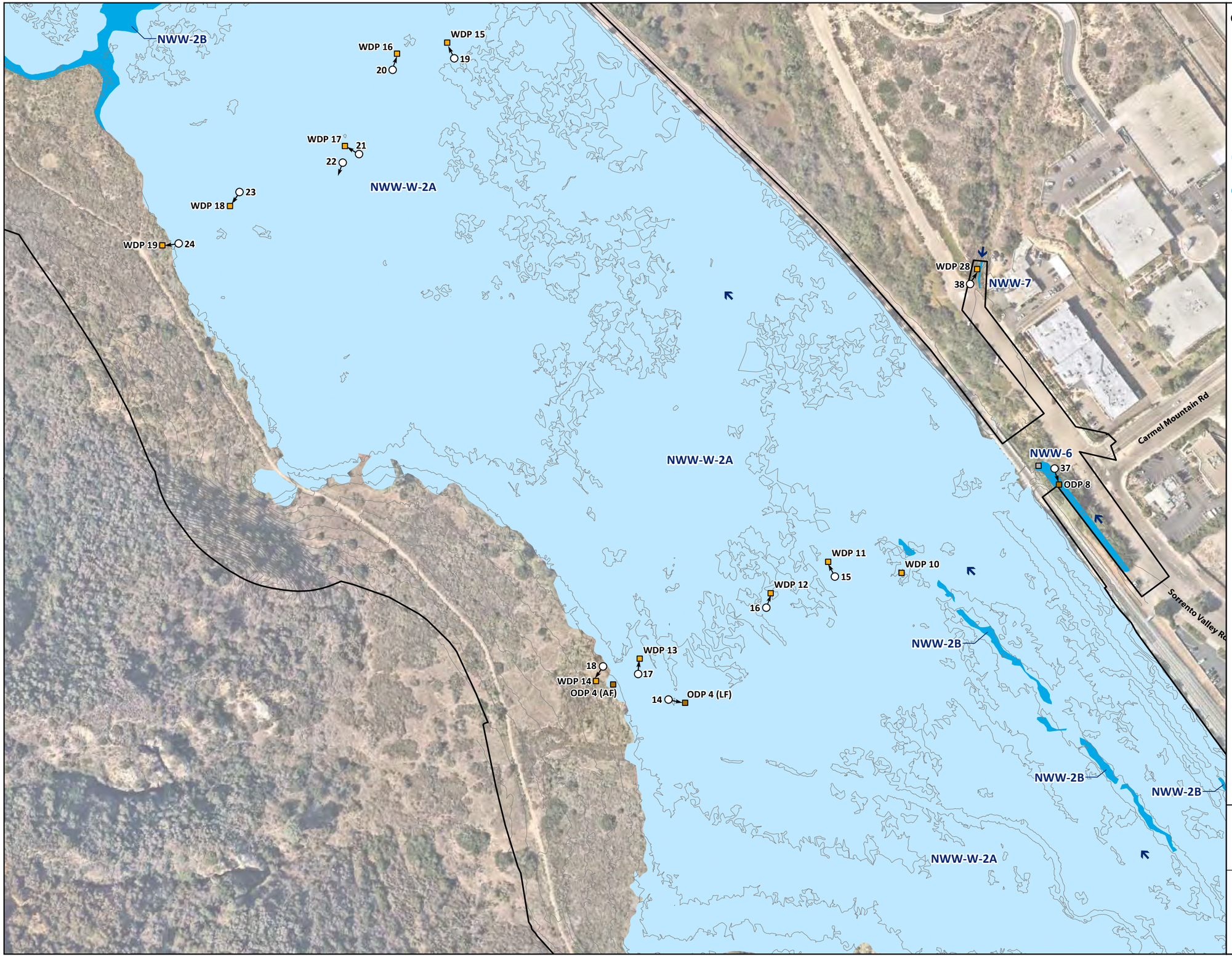
Corps Aquatic Resources

LOS PEÑASQUITOS LAGOON RESTORATION PROJECT – PHASE I

ROCKS BIOLOGICAL CONSULTING

0 100 200 FEET
1 INCH = 200 FEET

Date: 3/1/2022
Aerial Photo: Nearmap, 2021



ARDR Review Area (243.16 ac)

Photo Point

Culvert

Wetland Data Form Point (WDP)

OHWM Datasheet Point (ODP)

Flow Direction

Corps Aquatic Resources

Non-Wetland Waters - Federal Wetland (148.62 ac)*

Non-Wetland Waters (11.82 ac)

* Three-parameter wetland within OHWM.

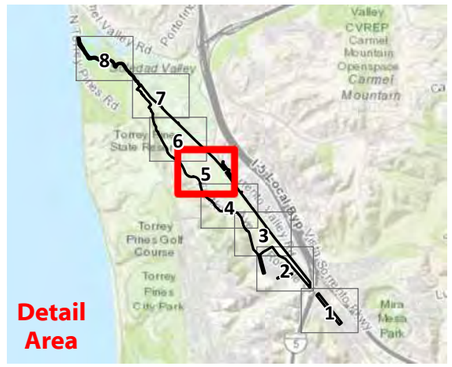


FIGURE 6A

PAGE 5 OF 8

Corps Aquatic Resources

LOS PEÑASQUITOS LAGOON RESTORATION PROJECT – PHASE I

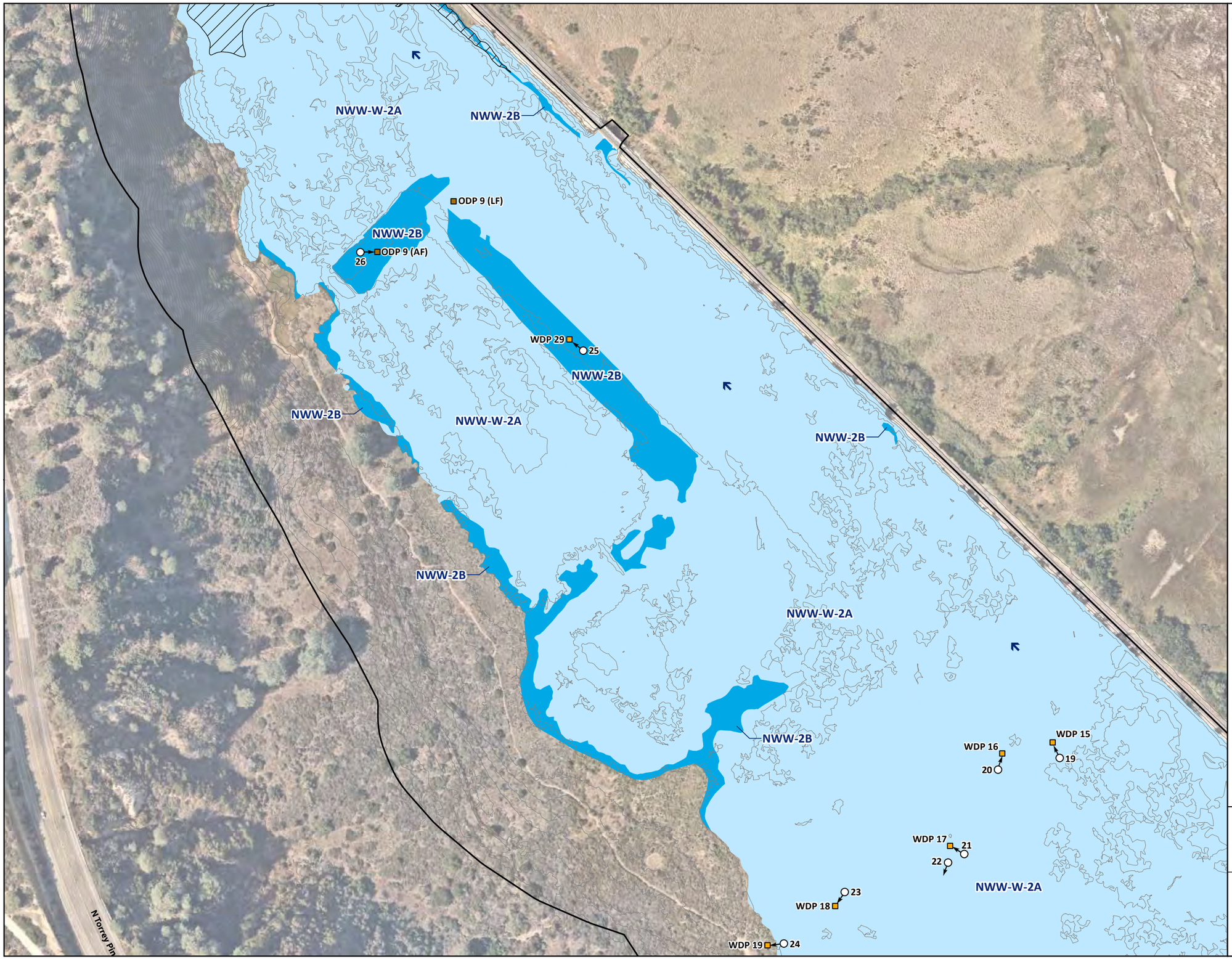
ROCKS BIOLOGICAL CONSULTING

0 100 200 FEET

1 INCH = 200 FEET

Date: 3/1/2022

Aerial Photo: Nearmap, 2021



ARDR Review Area (243.16 ac)

Photo Point

Wetland Data Form Point (WDP)

OHWM Datasheet Point (ODP)

Flow Direction**

Corps Aquatic Resources

Non-Wetland Waters - Federal Wetland (148.62 ac)*

Non-Wetland Waters (11.82 ac)

Tidal Waters - Section 404 HTL (7.01 feet MLLW)(10.63 ac)

* Three-parameter wetland within OHWM.

** Flow direction arrows account for non-tidal flows associated with Peñasquitos Creek.

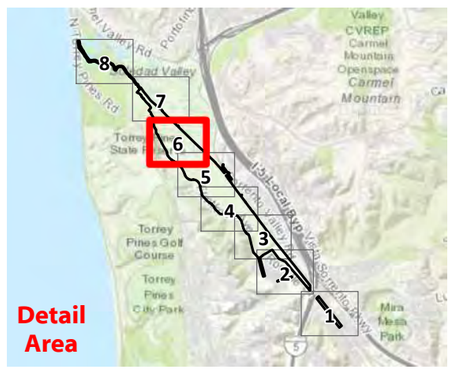


FIGURE 6A

PAGE 6 OF 8

Corps Aquatic Resources

LOS PEÑASQUITOS LAGOON RESTORATION PROJECT – PHASE I

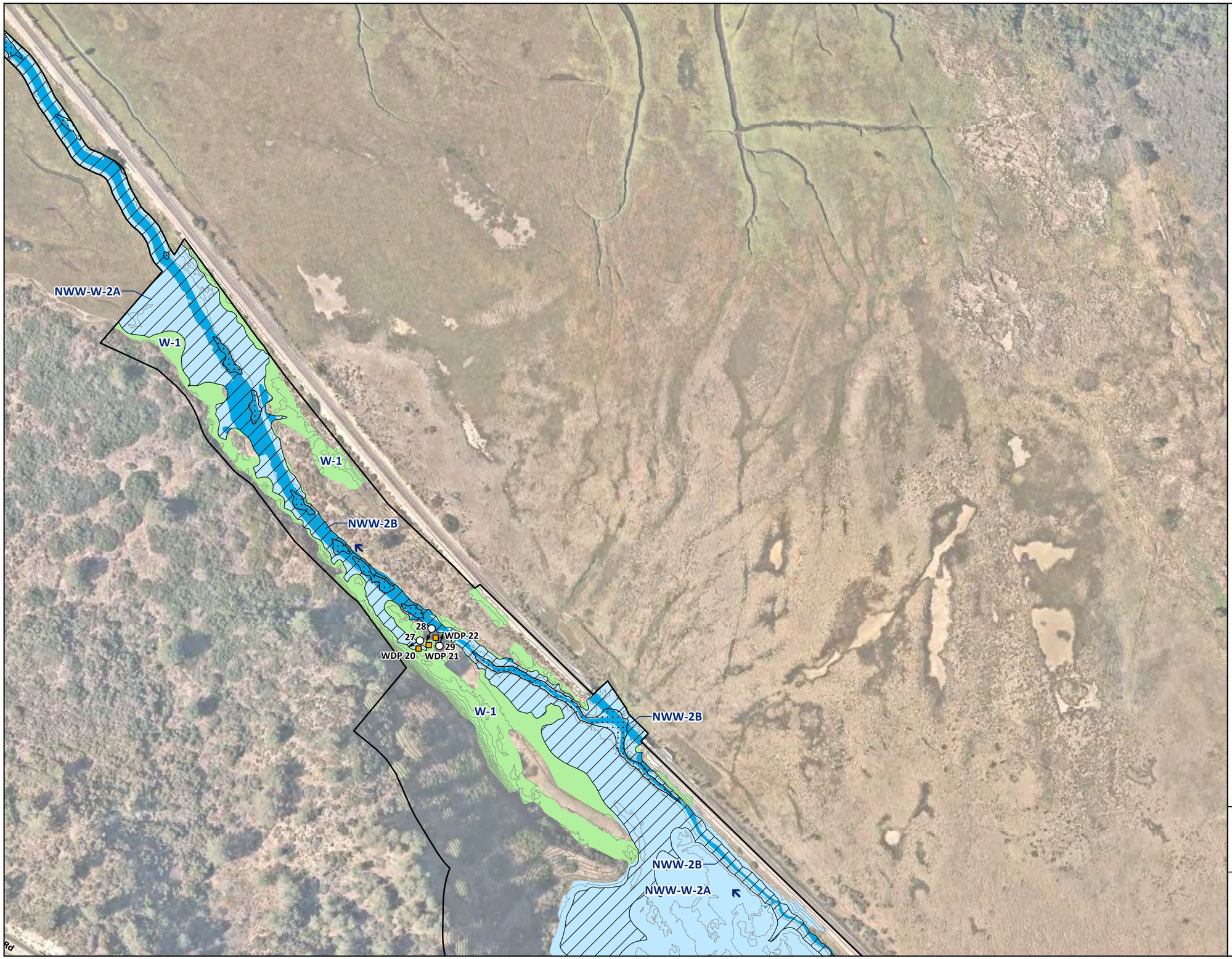
ROCKS BIOLOGICAL CONSULTING

0 100 200 FEET

1 INCH = 200 FEET

Date: 3/1/2022

Aerial Photo: Nearmap, 2021



ARDR Review Area (243.16 ac)

Photo Point

Wetland Data Form Point (WDP)

Flow Direction**

Corps Aquatic Resources

Wetland Waters - Federal Wetland (2.30 ac)

Non-Wetland Waters - Federal Wetland (148.62 ac)*

Non-Wetland Waters (11.82 ac)

Tidal Waters - Section 404 HTL (7.01 feet MLLW)(10.63 ac)

Tidal Waters - Section 10 MHW (4.6 feet MLLW, Overlaps with Section 404 HTL areas.)(5.72 ac)

* Three-parameter wetland within OHWM.

** Flow direction arrows account for non-tidal flows associated with Peñasquitos Creek.

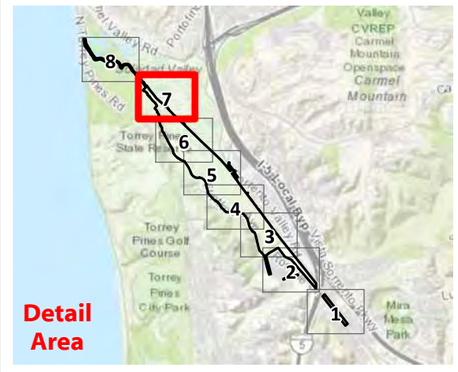


FIGURE 6A

PAGE 7 OF 8

Corps Aquatic Resources

LOS PEÑASQUITOS LAGOON RESTORATION PROJECT – PHASE I

ROCKS BIOLOGICAL CONSULTING

0 100 200 FEET

1 INCH = 200 FEET

Date: 3/1/2022

Aerial Photo: Nearmap, 2021

ARDR Review Area (243.16 ac)

Photo Point

Flow Direction**

Corps Aquatic Resources

Wetland Waters - Federal Wetland (2.30 ac)

Non-Wetland Waters - Federal Wetland (148.62 ac)*

Non-Wetland Waters (11.82 ac)

Tidal Waters - Section 404 HTL (7.01 feet MLLW)(10.63 ac)

Tidal Waters - Section 10 MHW (4.6 feet MLLW, Overlaps with Section 404 HTL areas.)(5.72 ac)

* Three-parameter wetland within OHWM.

** Flow direction arrows account for non-tidal flows associated with Peñasquitos Creek.

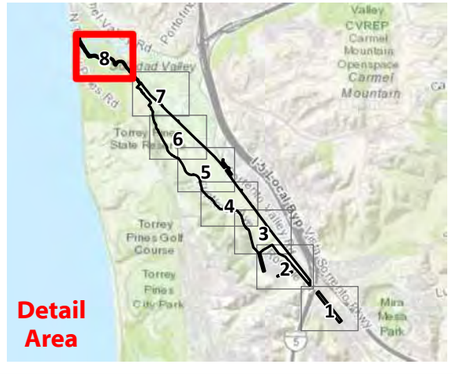


FIGURE 6A

PAGE 8 OF 8

Corps Aquatic Resources

LOS PEÑASQUITOS LAGOON RESTORATION PROJECT – PHASE I

ROCKS BIOLOGICAL CONSULTING

0 100 200 FEET

1 INCH = 200 FEET

Date: 3/1/2022

Aerial Photo: Nearmap, 2021

ARDR Review Area (243.16 ac)

Photo Point

Culvert

Wetland Data Form Point (WDP)

OHWM Datasheet Point (ODP)

Flow Direction

RWQCB Aquatic Resources

Wetland Waters - Federal/State Wetland (148.62 ac)*

Non-Wetland Waters - Concrete-Lined (2.60 ac)

* Three-parameter wetland within OHWM.

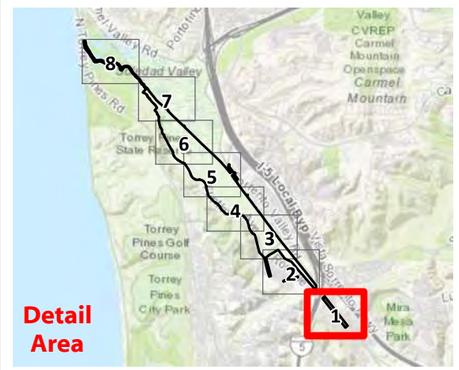


FIGURE 6B

PAGE 1 OF 8

RWQCB Aquatic Resources

LOS PEÑASQUITOS LAGOON RESTORATION PROJECT – PHASE I

ROCKS BIOLOGICAL CONSULTING

0 100 200 FEET

1 INCH = 200 FEET

N

Date: 7/27/2022

Aerial Photo: Nearmap, 2021

- ARDR Review Area (243.16 ac)
- Project Footprint
- Photo Point
- Culvert
- Wetland Data Form Point (WDP)
- OHWM Datasheet Point (ODP)
- Flow Direction

RWQCB Aquatic Resources

- Wetland Waters - Federal/State Wetland (148.62 ac)*
- Non-Wetland Waters (11.82 ac)
- Non-Wetland Waters - Concrete-Lined (2.60 ac)

* Three-parameter wetland within OHWM.

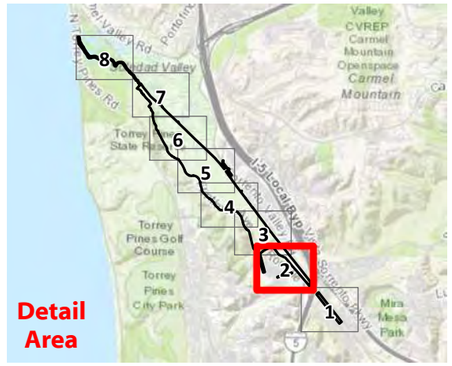


FIGURE 6B

PAGE 2 OF 8

RWQCB Aquatic Resources

LOS PEÑASQUITOS LAGOON RESTORATION PROJECT – PHASE I

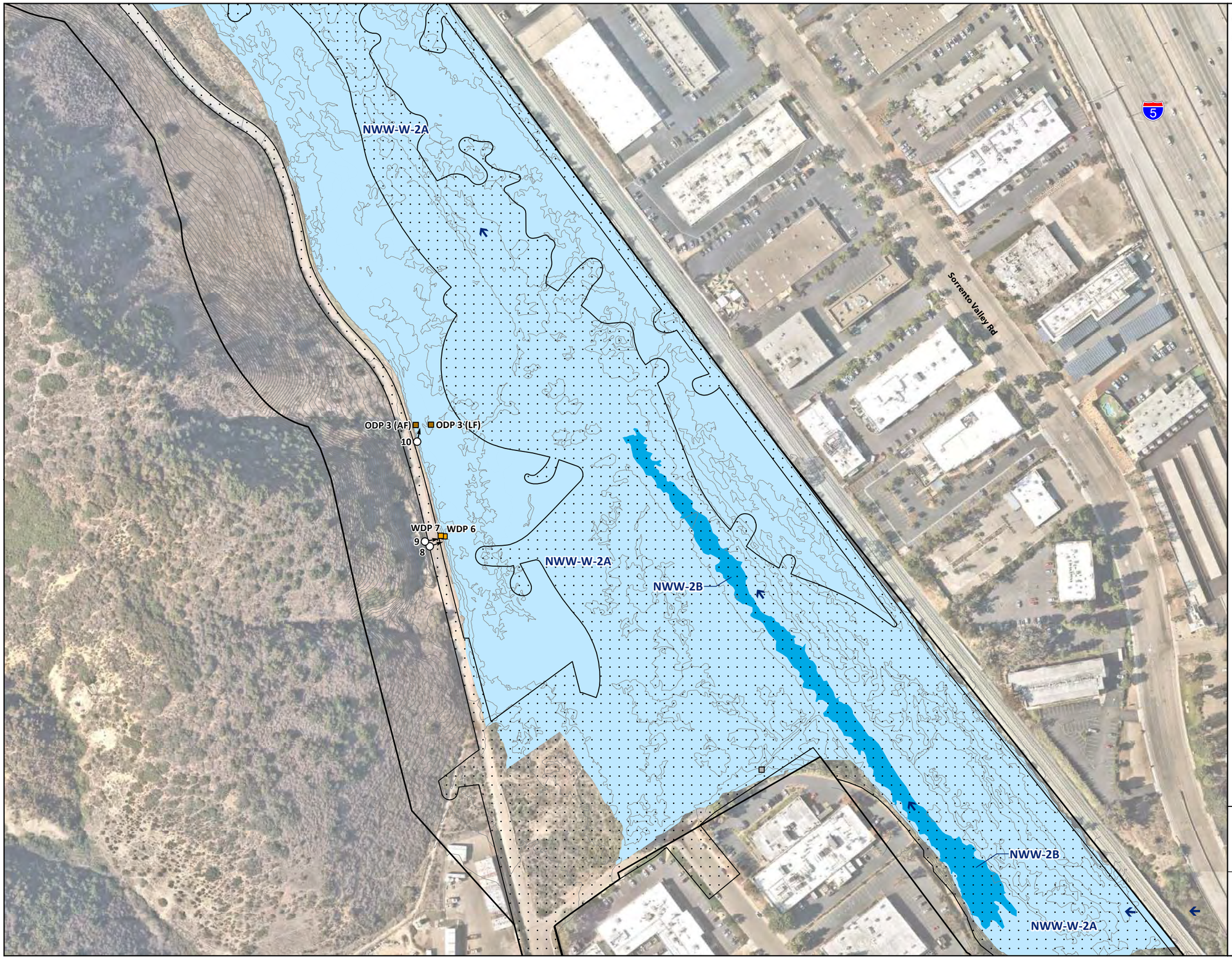
ROCKS BIOLOGICAL CONSULTING

0 100 200 FEET

1 INCH = 200 FEET

Date: 7/27/2022

Aerial Photo: Nearmap, 2021



ARDR Review Area (243.16 ac)

Project Footprint

Photo Point

Culvert

Wetland Data Form Point (WDP)

OHWM Datasheet Point (ODP)

Flow Direction

RWQCB Aquatic Resources

Wetland Waters - Federal/State Wetland (148.62 ac)*

Non-Wetland Waters (11.82 ac)

* Three-parameter wetland within OHWM.

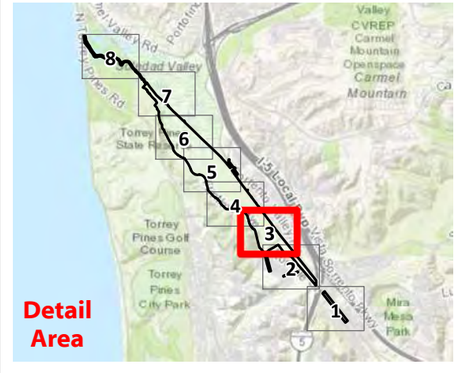


FIGURE 6B

PAGE 3 OF 8

RWQCB Aquatic Resources

LOS PEÑASQUITOS LAGOON RESTORATION PROJECT – PHASE I

ROCKS BIOLOGICAL CONSULTING

0 100 200 FEET

1 INCH = 200 FEET

Date: 7/27/2022

Aerial Photo: Nearmap, 2021

NWW-2B
NWW-2B
NWW-W-2A
NWW-W-2A
NWW-W-2A
Sorrento Valley Rd
WDP 27
36
35
WDP 26
ODP 7
34
WDP 25
NWW-5
ODP 6
33
13
WDP 9
WDP 8
12
NWW-4
11

ARDR Review Area (243.16 ac)
Project Footprint
Photo Point
Culvert
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction

RWQCB Aquatic Resources

Wetland Waters - Federal/State Wetland (148.62 ac)*
Non-Wetland Waters (11.82 ac)

* Three-parameter wetland within OHWM.

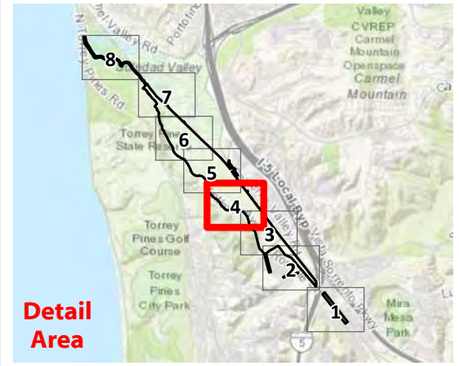


FIGURE 6B
PAGE 4 OF 8

RWQCB Aquatic Resources

LOS PEÑASQUITOS LAGOON RESTORATION PROJECT – PHASE I

ROCKS BIOLOGICAL CONSULTING

0 100 200 FEET
1 INCH = 200 FEET

Date: 7/27/2022
Aerial Photo: Nearmap, 2021

NWW-2B
WDP 16
20
WDP 15
19
WDP 17
21
22
NWW-W-2A
WDP 18
23
WDP 19
24
WDP 28
38
NWW-7
Carmel Mountain Rd
NWW-6
37
ODP 8
NWW-W-2A
WDP 11
15
WDP 10
WDP 12
16
Sorrento Valley Rd
NWW-2B
WDP 13
18
17
WDP 14
ODP 4 (AF)
14
ODP 4 (LF)
NWW-2B
NWW-2B
NWW-W-2A

ARDR Review Area (243.16 ac)
Project Footprint
Photo Point
Culvert
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction

RWQCB Aquatic Resources

Wetland Waters - Federal/State Wetland (148.62 ac)*
Non-Wetland Waters (11.82 ac)

* Three-parameter wetland within OHWM.

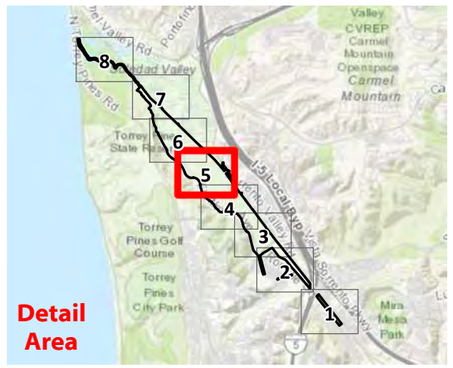


FIGURE 6B
PAGE 5 OF 8

RWQCB Aquatic Resources

LOS PEÑASQUITOS LAGOON RESTORATION PROJECT – PHASE I

ROCKS BIOLOGICAL CONSULTING

0 100 200 FEET
1 INCH = 200 FEET

Date: 7/27/2022
Aerial Photo: Nearmap, 2021

NWW-W-2A
NWW-2B
ODP 9 (LF)
NWW-2B
ODP 9 (AF)
26
WDP 29
25
NWW-2B
NWW-2B
NWW-W-2A
NWW-2B
NWW-2B
NWW-W-2A
NWW-2B
WDP 16
20
WDP 15
19
WDP 17
21
22
NWW-W-2A
WDP 18
23
WDP 19
24
N Torrey Pin

ARDR Review Area (243.16 ac)
Project Footprint
Photo Point
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction**

RWQCB Aquatic Resources

Wetland Waters - Federal/State Wetland (148.62 ac)*
Non-Wetland Waters (11.82 ac)
Tidal Waters - Section 404 HTL (7.01 feet MLLW)(10.63 ac)

* Three-parameter wetland within OHWM.

** Flow direction arrows account for non-tidal flows associated with Peñasquitos Creek.

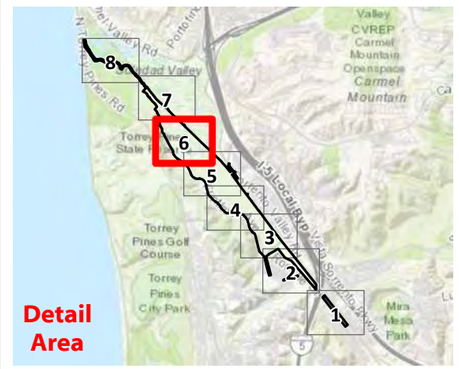


FIGURE 6B
PAGE 6 OF 8

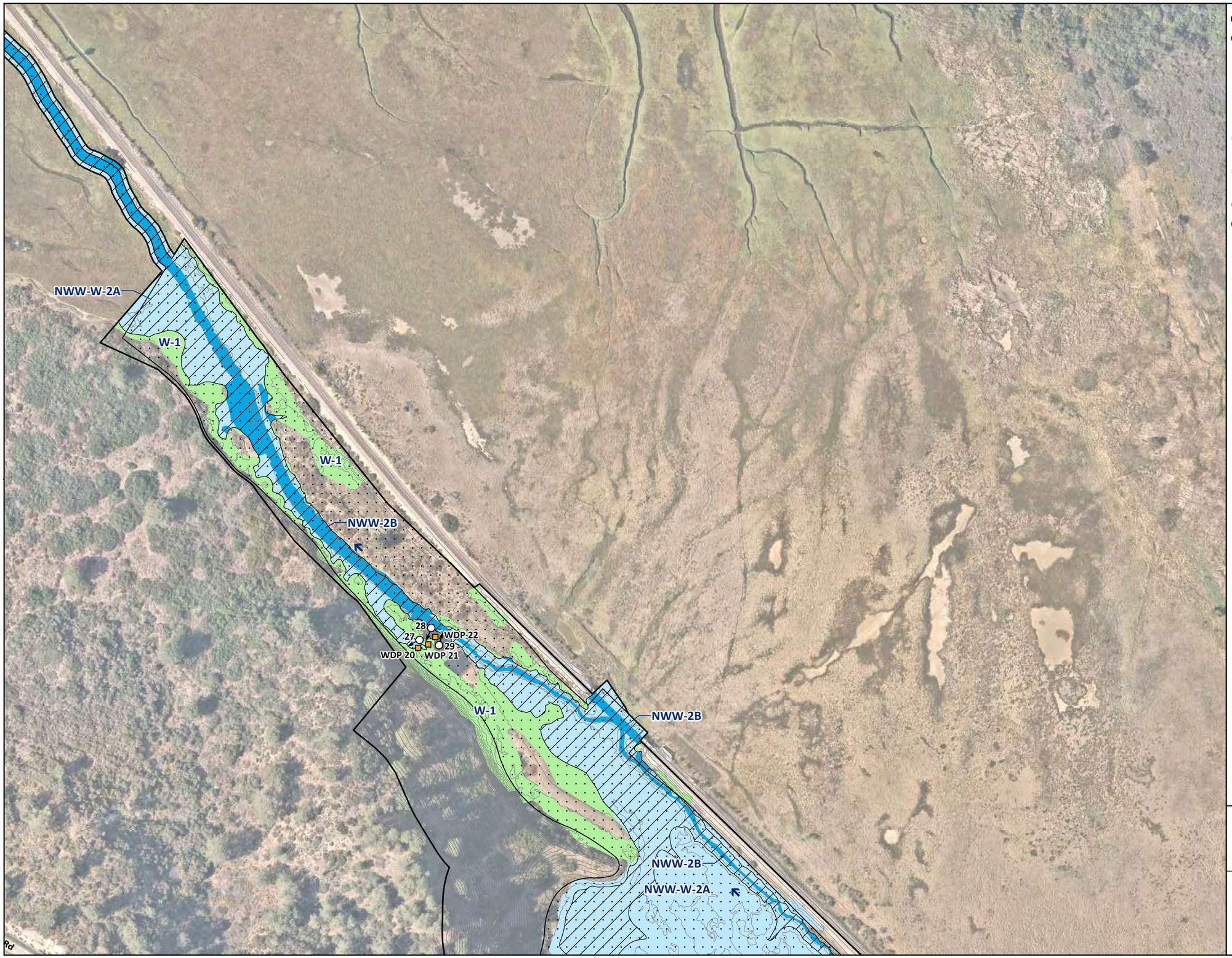
RWQCB Aquatic Resources

LOS PEÑASQUITOS LAGOON RESTORATION PROJECT – PHASE I

ROCKS BIOLOGICAL CONSULTING

0 100 200 FEET
1 INCH = 200 FEET

Date: 7/27/2022
Aerial Photo: Nearmap, 2021



ARDR Review Area (243.16 ac)

Project Footprint

Photo Point

Wetland Data Form Point (WDP)

Flow Direction**

RWQCB Aquatic Resources

Wetland Waters - Federal/State Wetland (2.30 ac)

Wetland Waters - Federal/State Wetland (148.62 ac)*

Non-Wetland Waters (11.82 ac)

Tidal Waters - Section 404 HTL (7.01 feet MLLW)(10.63 ac)

* Three-parameter wetland within OHWM.

** Flow direction arrows account for non-tidal flows associated with Peñasquitos Creek.

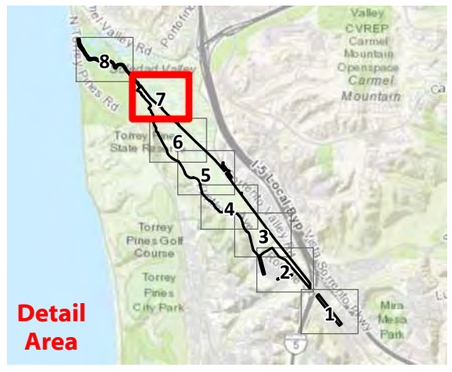


FIGURE 6B

PAGE 7 OF 8

RWQCB Aquatic Resources

LOS PEÑASQUITOS LAGOON RESTORATION PROJECT – PHASE I

ROCKS BIOLOGICAL CONSULTING

0 100 200 FEET

1 INCH = 200 FEET

Date: 7/27/2022

Aerial Photo: Nearmap, 2021

W-1

NWW-2B

NWW-W-2A

NWW-W-2A

N Torrey Pines Rd

Carmel Valley Rd

ARDR Review Area (243.16 ac)

Project Footprint

Photo Point

Flow Direction**

RWQCB Aquatic Resources

Wetland Waters - Federal/State Wetland (2.30 ac)

Wetland Waters - Federal/State Wetland (148.62 ac)*

Non-Wetland Waters (11.82 ac)

Tidal Waters - Section 404 HTL (7.01 feet MLLW)(10.63 ac)

* Three-parameter wetland within OHWM.

** Flow direction arrows account for non-tidal flows associated with Peñasquitos Creek.

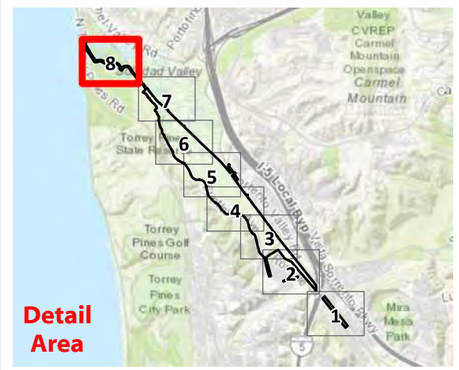


FIGURE 6B

PAGE 8 OF 8

RWQCB Aquatic Resources

LOS PEÑASQUITOS LAGOON RESTORATION PROJECT – PHASE I

ROCKS BIOLOGICAL CONSULTING

0 100 200 FEET

1 INCH = 200 FEET

Date: 7/27/2022

Aerial Photo: Nearmap, 2021

ARDR Review Area (243.16 ac)
Photo Point
Culvert
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction

CDFW Vegetated Streambed
Arundo (4.69 ac)
Southern Willow Scrub (2.55 ac)
Southern Willow Scrub - Disturbed (0.15 ac)

CDFW Unvegetated Streambed
Non-vegetated Channel (3.14 ac)
Disturbed Habitat (0.01 ac)
Developed (0.16 ac)

CDFW Riparian Habitat
Southern Willow Scrub (0.50 ac)
Southern Willow Scrub - Disturbed (0.22 ac)

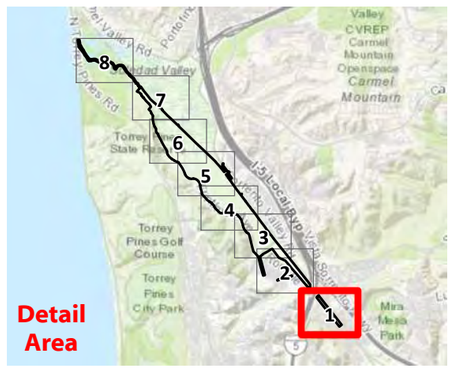


FIGURE 6C
PAGE 1 OF 8

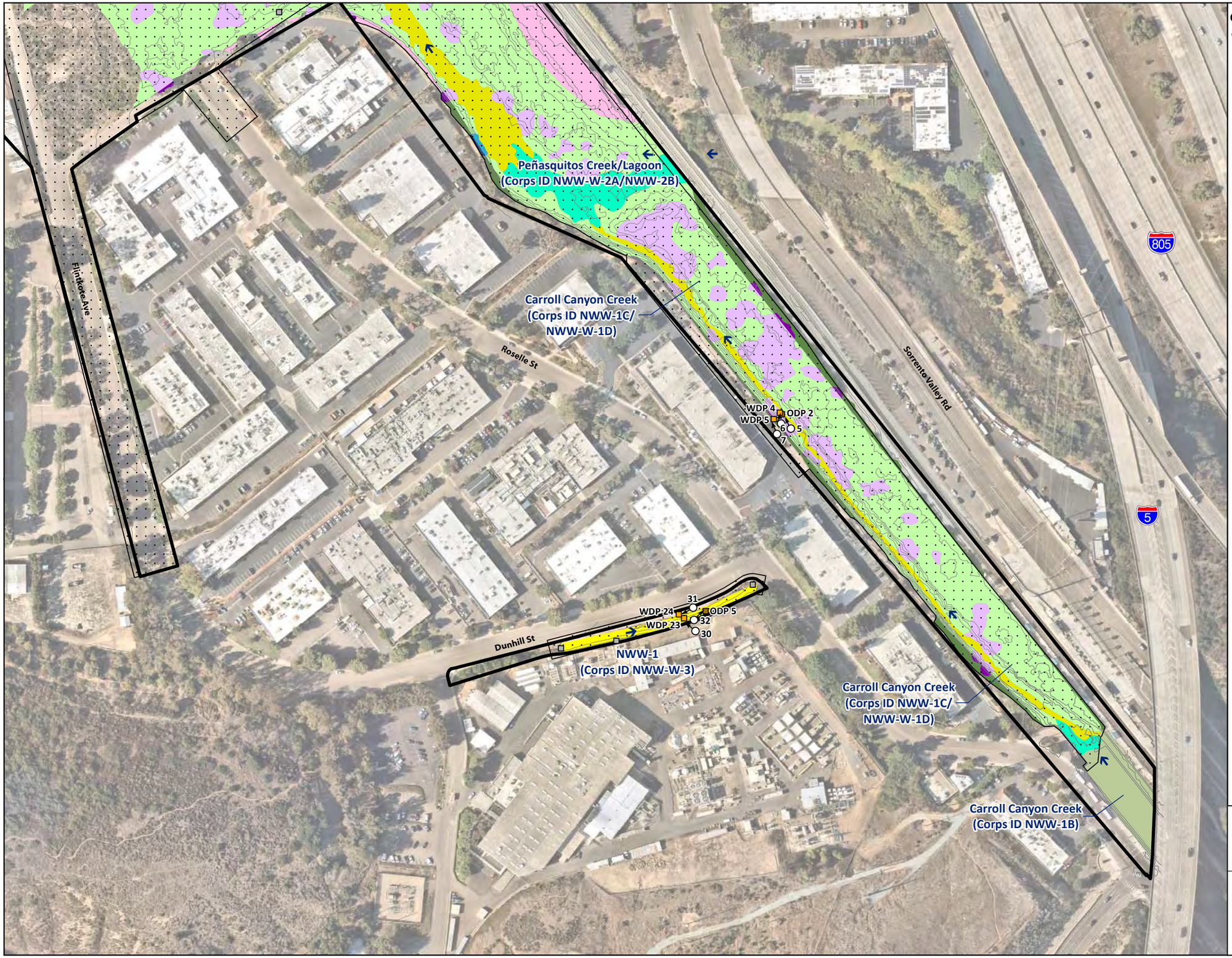
CDFW Streambed and Riparian Habitats

LOS PEÑASQUITOS LAGOON RESTORATION PROJECT – PHASE I

ROCKS BIOLOGICAL CONSULTING

0 100 200 FEET
1 INCH = 200 FEET

Date: 7/27/2022
Aerial Photo: Nearmap, 2021



ARDR Review Area (243.16 ac)
Project Footprint
Photo Point
Culvert
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction

CDFW Vegetated Streambed
- Arundo (4.69 ac)
- Coastal and Valley Freshwater Marsh (11.35 ac)
- Coastal Brackish Marsh (2.42 ac)
- Disturbed Wetland (0.19 ac)
- Southern Arroyo Willow Riparian Forest (65.00 ac)
- Southern Willow Scrub - Disturbed (0.15 ac)

CDFW Unvegetated Streambed
- Non-vegetated Channel (3.14 ac)
- Open Water (6.91 ac)
- Developed (0.16 ac)

CDFW Riparian Habitat
- Arundo (0.04 ac)
- Southern Arroyo Willow Riparian Forest (0.52 ac)
- Southern Willow Scrub - Disturbed (0.22 ac)

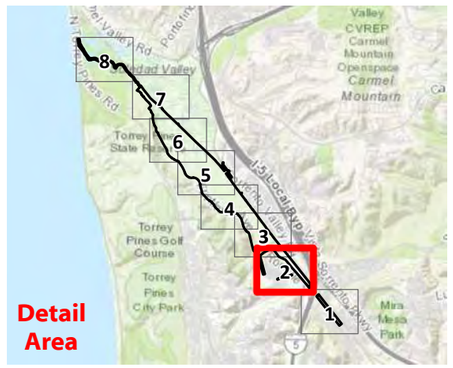


FIGURE 6C
PAGE 2 OF 8

CDFW Streambed and Riparian Habitats

LOS PEÑASQUITOS LAGOON RESTORATION PROJECT – PHASE I

ROCKS BIOLOGICAL CONSULTING

0 100 200 FEET
1 INCH = 200 FEET

Date: 7/27/2022
Aerial Photo: Nearmap, 2021

ARDR Review Area (243.16 ac)
Project Footprint
Photo Point
Culvert
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction

CDFW Vegetated Streambed
Arundo (4.69 ac)
Coastal and Valley Freshwater Marsh (11.35 ac)
Coastal Brackish Marsh (2.42 ac)
Mule Fat Scrub (12.22 ac)
Southern Arroyo Willow Riparian Forest (65.00 ac)
Southern Coastal Salt Marsh (12.92 ac)
Southern Willow Scrub - Disturbed (0.15 ac)

CDFW Unvegetated Streambed
Open Water (6.91 ac)

CDFW Riparian Habitat
Arundo (0.04 ac)
Southern Arroyo Willow Riparian Forest (0.52 ac)
Southern Willow Scrub - Disturbed (0.22 ac)

Peñasquitos Creek/Lagoon
(Corps ID NWW-W-2A/NWW-2B)

ODP 3 (AF)
ODP 3 (LF)
10
WDP 7
WDP 6
9
8

Sorrento Valley Rd

5

Peñasquitos Creek/Lagoon
(Corps ID NWW-W-2A/NWW-2B)

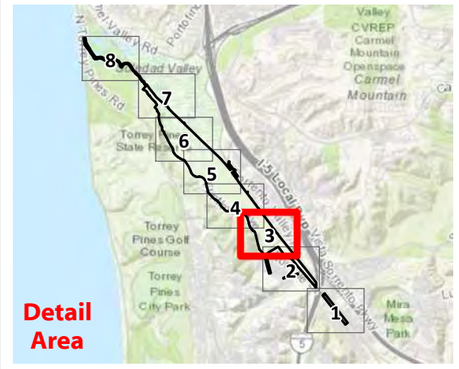


FIGURE 6C
PAGE 3 OF 8

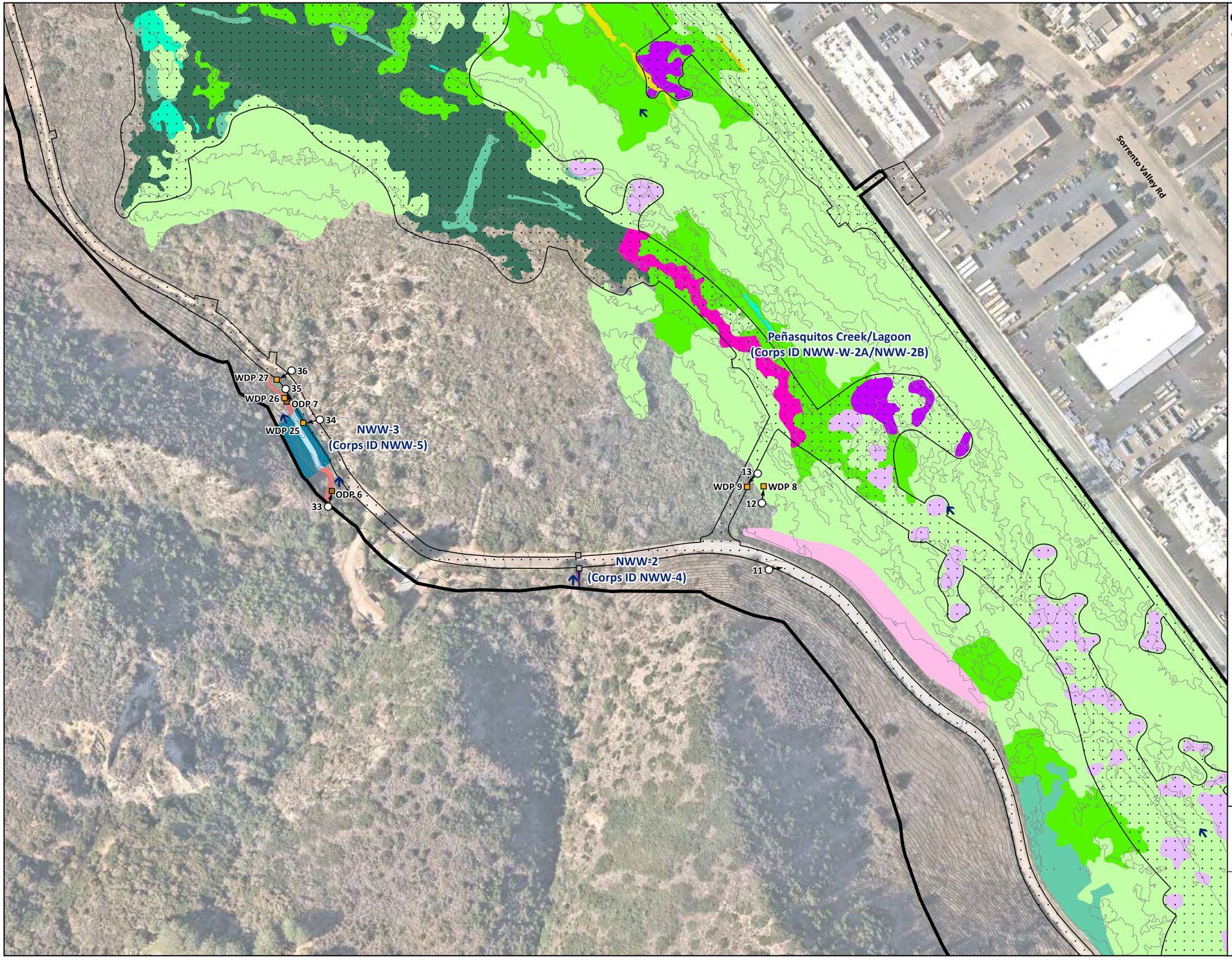
CDFW Streambed and Riparian Habitats

LOS PEÑASQUITOS LAGOON RESTORATION PROJECT – PHASE I

ROCKS BIOLOGICAL CONSULTING

0 100 200 FEET
1 INCH = 200 FEET

Date: 7/27/2022
Aerial Photo: Nearmap, 2021



ARDR Review Area (243.16 ac)
Project Footprint
Photo Point
Culvert
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction

CDFW Vegetated Streambed
- Alkali Seep (0.47 ac)
- Arundo (4.69 ac)
- Blue Elderberry Series (0.01 ac)
- Coastal and Valley Freshwater Marsh (11.35 ac)
- Coastal Brackish Marsh (2.42 ac)
- Diegan Coastal Sage Scrub (3.16 ac)
- Mule Fat Scrub (12.22 ac)
- Pampas Grass (0.44 ac)
- Southern Arroyo Willow Riparian Forest (65.00 ac)
- Southern Coastal Salt Marsh (12.92 ac)
- Southern Coastal Salt Marsh - Degraded (41.26 ac)
- Southern Willow Scrub (2.55 ac)

CDFW Unvegetated Streambed
- Open Water (6.91 ac)

CDFW Riparian Habitat
- Southern Willow Scrub (0.50 ac)

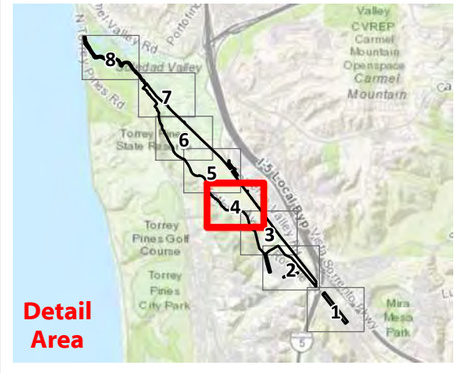


FIGURE 6C
PAGE 4 OF 8

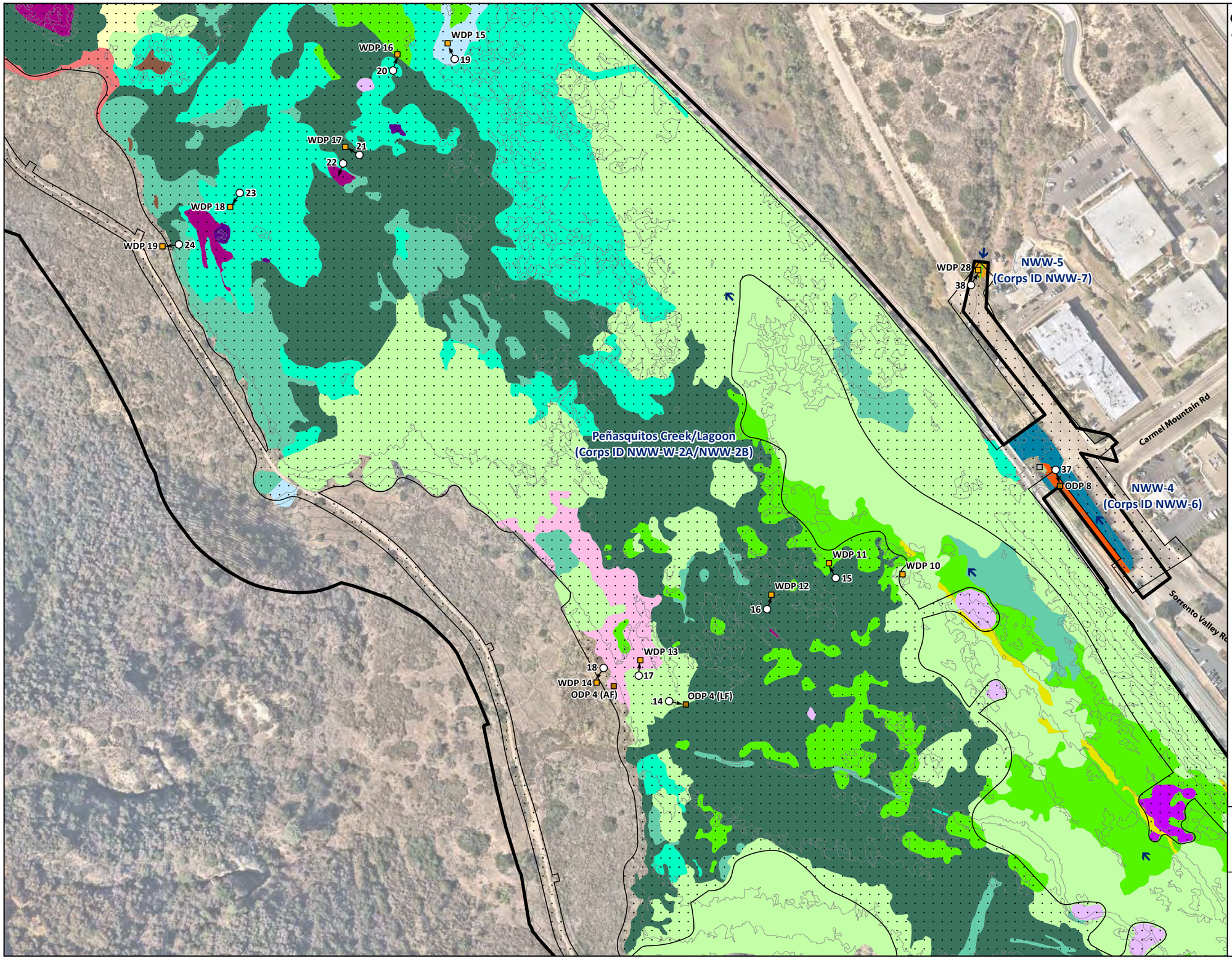
CDFW Streambed and Riparian Habitats

LOS PEÑASQUITOS LAGOON RESTORATION PROJECT – PHASE I

ROCKS BIOLOGICAL CONSULTING

0 100 200 FEET
1 INCH = 200 FEET

Date: 7/27/2022
Aerial Photo: Nearmap, 2021



ARDR Review Area (243.16 ac)
Project Footprint
Photo Point
Culvert
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction

CDFW Vegetated Streambed
- Alkali Meadow (1.09 ac)
- Arundo (4.69 ac)
- Coastal and Valley Freshwater Marsh (11.35 ac)
- Coastal Brackish Marsh (2.42 ac)
- Diegan Coastal Sage Scrub (3.16 ac)
- Mule Fat Scrub (12.22 ac)
- Non-native Grassland (2.84 ac)
- Pampas Grass (0.44 ac)
- Southern Arroyo Willow Riparian Forest (65.00 ac)
- Southern Coastal Salt Marsh (12.92 ac)
- Southern Coastal Salt Marsh - Degraded (41.26 ac)
- Southern Willow Scrub (2.55 ac)
- Tamarisk (0.06 ac)

CDFW Unvegetated Streambed
- Non-vegetated Channel (3.14 ac)
- Open Water (6.91 ac)
- Saltpan/Mudflats (0.42 ac)
- Southern Willow Scrub (0.10 ac)*
- Disturbed Habitat (0.01 ac)
- Developed (0.16 ac)

CDFW Riparian Habitat
- Mule Fat Scrub (0.02 ac)
- Southern Willow Scrub (0.50 ac)

*Unvegetated streambed within southern willow scrub vegetation community; however, no vegetation technically present within the streambed.

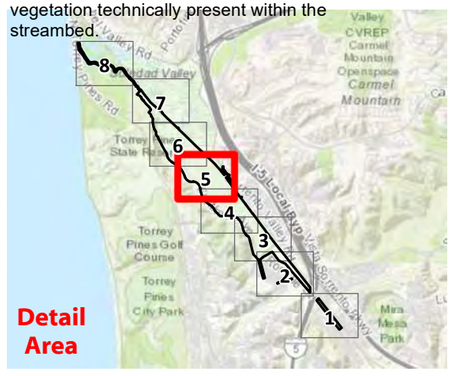


FIGURE 6C
PAGE 5 OF 8

CDFW Streambed and Riparian Habitats

LOS PEÑASQUITOS LAGOON RESTORATION PROJECT – PHASE I

ROCKS BIOLOGICAL CONSULTING

0 100 200 FEET
1 INCH = 200 FEET

Date: 7/27/2022
Aerial Photo: Nearmap, 2021

ODP 9 (LF)
ODP 9 (AF)
26
WDP 29
25
Peñasquitos Creek/Lagoon
(Corps ID NWW-W-2A/NWW-2B)
WDP 16
20
WDP 15
19
WDP 17
21
22
23
WDP 18
WDP 19
24
N Torrey Pin

ARDR Review Area (243.16 ac)
Project Footprint
Photo Point
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction*

CDFW Vegetated Streambed

- Alkali Meadow (1.09 ac)
- Arundo (4.69 ac)
- Coastal and Valley Freshwater Marsh (11.35 ac)
- Diegan Coastal Sage Scrub (3.16 ac)
- Diegan Coastal Sage Scrub - Disturbed (0.02 ac)
- Iceplant (0.36 ac)
- Mule Fat Scrub (12.22 ac)
- Non-native Grassland (2.84 ac)
- Pampas Grass (0.44 ac)
- Southern Arroyo Willow Riparian Forest (65.00 ac)
- Southern Coastal Salt Marsh (12.92 ac)
- Southern Coastal Salt Marsh - Degraded (41.26 ac)
- Southern Willow Scrub (2.55 ac)
- Tamarisk (0.06 ac)

CDFW Unvegetated Streambed

- Open Water (6.91 ac)
- Saltpan/Mudflats (0.42 ac)
- Disturbed Habitat (0.01 ac)

* Flow direction arrows account for non-tidal flows associated with Peñasquitos Creek.

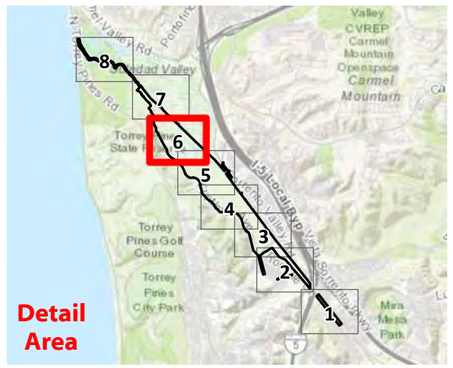


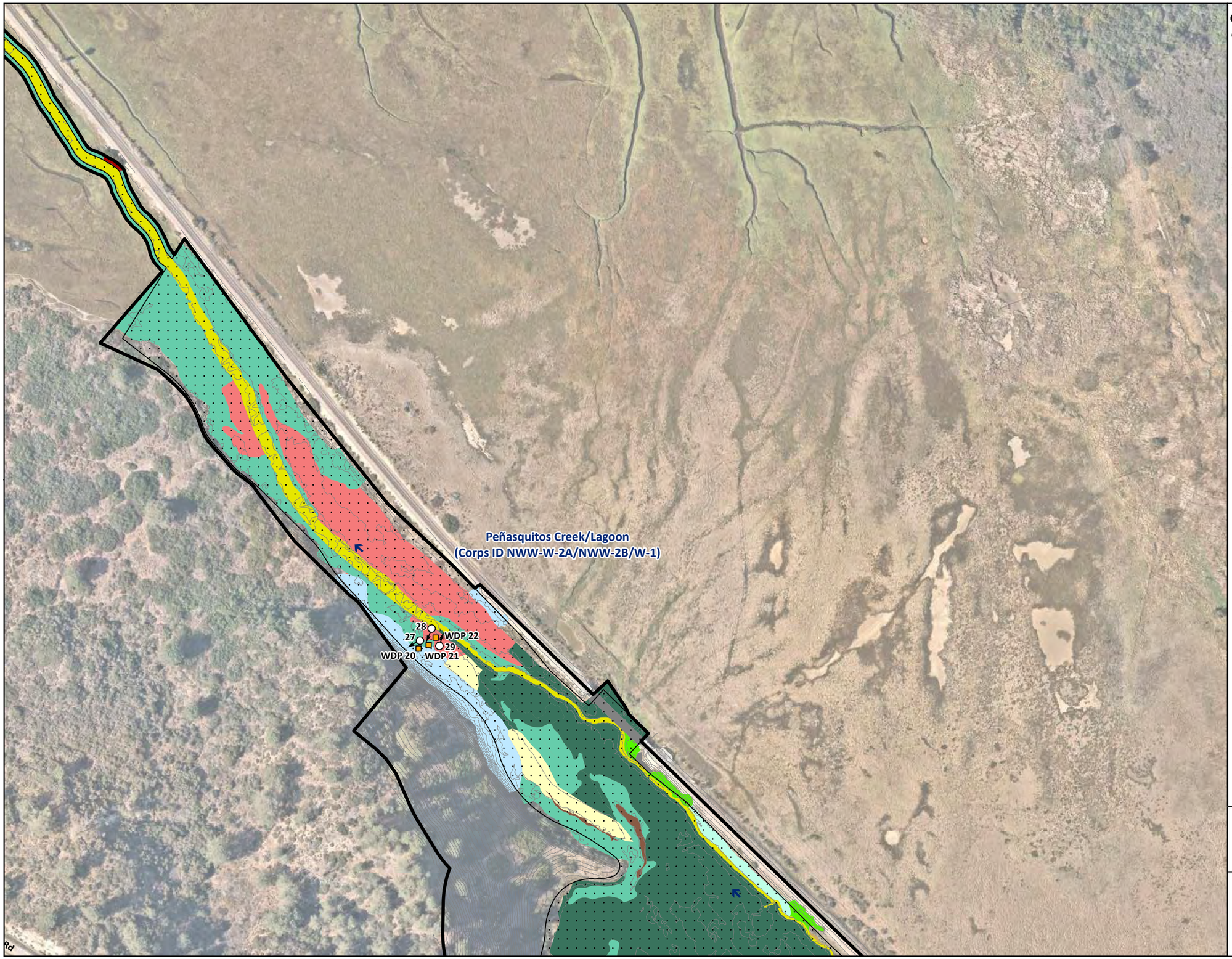
FIGURE 6C
PAGE 6 OF 8

CDFW Streambed and Riparian Habitats
LOS PEÑASQUITOS LAGOON RESTORATION PROJECT – PHASE I

ROCKS BIOLOGICAL CONSULTING

0 100 200 FEET
1 INCH = 200 FEET

Date: 7/27/2022
Aerial Photo: Nearmap, 2021



ARDR Review Area (243.16 ac)
Project Footprint
Photo Point
Wetland Data Form Point (WDP)
Flow Direction*

CDFW Vegetated Streambed

- Coastal and Valley Freshwater Marsh - Disturbed (0.13 ac)
- Diegan Coastal Sage Scrub (3.16 ac)
- Disturbed Habitat - Coastal Wattle (0.01 ac)
- Mule Fat Scrub (12.22 ac)
- Non-native Grassland (2.84 ac)
- Southern Coastal Salt Marsh (12.92 ac)
- Southern Coastal Salt Marsh - Degraded (41.26 ac)
- Southern Willow Scrub (2.55 ac)

CDFW Unvegetated Streambed

- Open Water (6.91 ac)
- Saltpan/Mudflats (0.42 ac)
- Disturbed Habitat (0.01 ac)
- Developed (0.16 ac)

* Flow direction arrows account for non-tidal flows associated with Peñasquitos Creek.

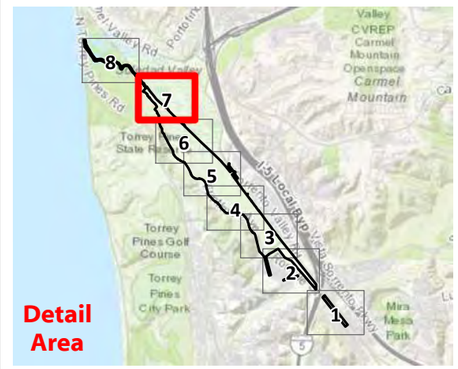


FIGURE 6C
PAGE 7 OF 8

CDFW Streambed and Riparian Habitats

LOS PEÑASQUITOS LAGOON RESTORATION PROJECT – PHASE I

ROCKS BIOLOGICAL CONSULTING

0 100 200 FEET
1 INCH = 200 FEET

Date: 7/27/2022
Aerial Photo: Nearmap, 2021

N Torrey Pines Rd

Carmel Valley Rd

Peñasquitos Creek/Lagoon
(Corps ID NWW-W-2A/NWW-2B)

ARDR Review Area (243.16 ac)
Project Footprint
Photo Point
Flow Direction*

CDFW Vegetated Streambed
Southern Coastal Salt Marsh (12.92 ac)

CDFW Unvegetated Streambed
Open Water (6.91 ac)

* Flow direction arrows account for non-tidal flows associated with Peñasquitos Creek.

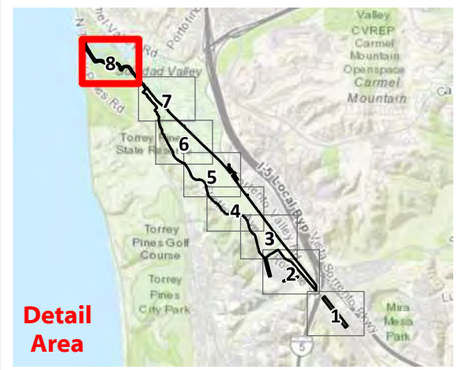


FIGURE 6C
PAGE 8 OF 8

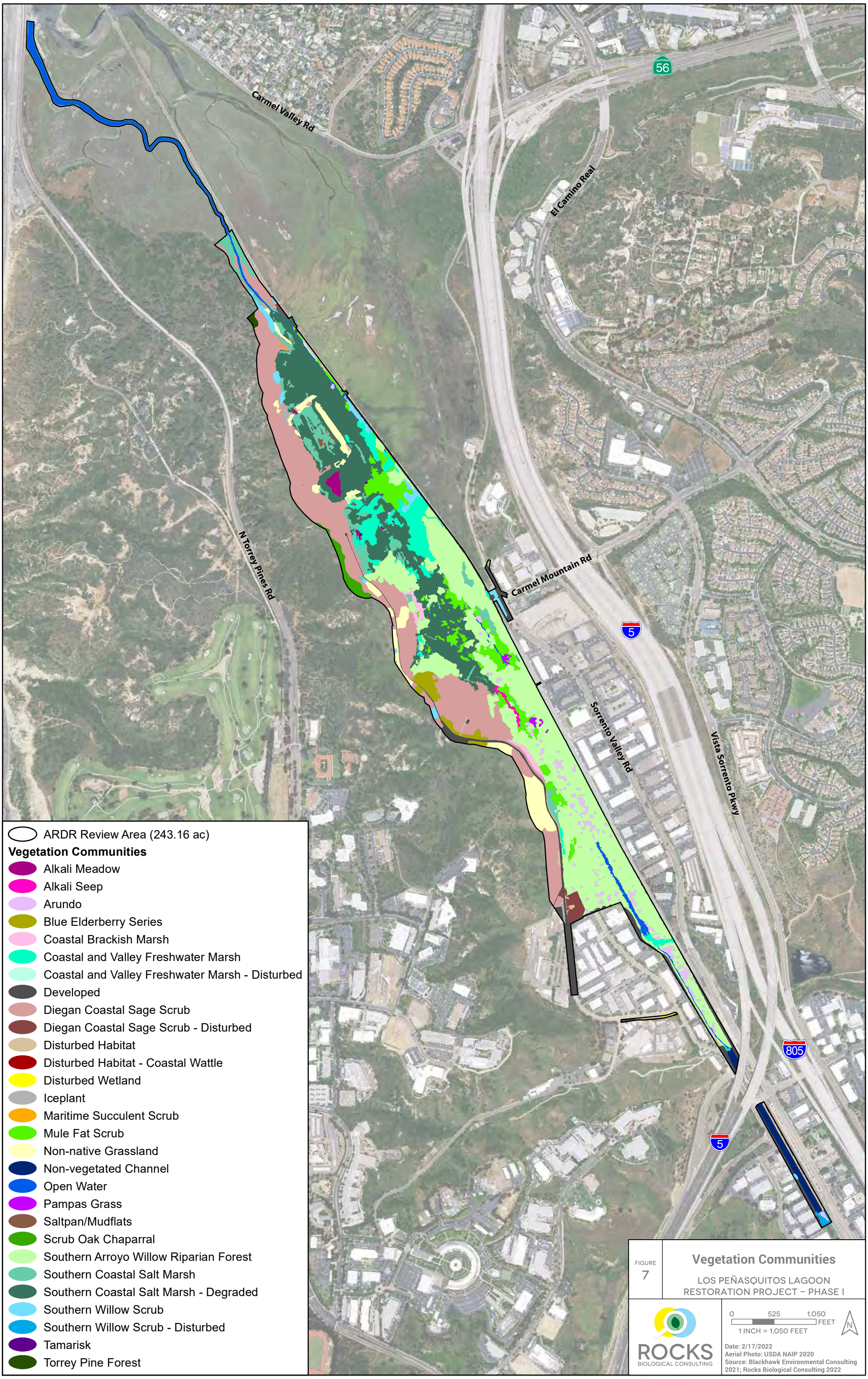
CDFW Streambed and Riparian Habitats

LOS PEÑASQUITOS LAGOON RESTORATION PROJECT – PHASE I

ROCKS BIOLOGICAL CONSULTING

0 100 200 FEET
1 INCH = 200 FEET

Date: 7/27/2022
Aerial Photo: Nearmap, 2021


Carmel Valley Rd
El Camino Real
56
N Torrey Pines Rd
Carmel Mountain Rd
5
Sorrento Valley Rd
Vista Sorrento Pkwy
805
5
ARDR Review Area (243.16 ac)
Vegetation Communities
Alkali Meadow
Alkali Seep
Arundo
Blue Elderberry Series
Coastal Brackish Marsh
Coastal and Valley Freshwater Marsh
Coastal and Valley Freshwater Marsh - Disturbed
Developed
Diegan Coastal Sage Scrub
Diegan Coastal Sage Scrub - Disturbed
Disturbed Habitat
Disturbed Habitat - Coastal Wattle
Disturbed Wetland
Iceplant
Maritime Succulent Scrub
Mule Fat Scrub
Non-native Grassland
Non-vegetated Channel
Open Water
Pampas Grass
Saltpan/Mudflats
Scrub Oak Chaparral
Southern Arroyo Willow Riparian Forest
Southern Coastal Salt Marsh
Southern Coastal Salt Marsh - Degraded
Southern Willow Scrub
Southern Willow Scrub - Disturbed
Tamarisk
Torrey Pine Forest
FIGURE
7
Vegetation Communities
LOS PEÑASQUITOS LAGOON
RESTORATION PROJECT – PHASE I
ROCKS
BIOLOGICAL CONSULTING
0
525
1,050
FEET
1 INCH = 1,050 FEET
N
Date: 2/17/2022
Aerial Photo: USDA NAIP 2020
Source: Blackhawk Environmental Consulting 2021; Rocks Biological Consulting 2022

APPENDIX A

CHECKLIST: MINIMUM STANDARDS FOR ACCEPTANCE OF AQUATIC RESOURCES DELINEATION REPORTS

APPENDIX A. Checklist: Minimum Standards for Acceptance of Aquatic Resources Delineation Reports, Los Angeles District Regulatory Division, USACE, March 16, 2017

REPORT SECTION/ PAGE NUMBER	MINIMUM STANDARDS FOR ACCEPTANCE OF AQUATIC RESOURCES DELINEATION REPORTS	ADDITIONAL NOTES
N/A	1. JD REQUEST AND FORMS: ☐ A cover letter indicating whether you are requesting a jurisdictional determination (JD)*. ☐ If you are requesting a JD, you must complete, sign, and return the Request for Corps Jurisdictional Determination (JD) sheet. ☐ For preliminary jurisdictional determinations the Preliminary Jurisdictional Determination Form must be signed and submitted.	N/A. No JD is being requested at this time.
Section 9	2. CONTACT INFORMATION: Contact information for the ☑ applicant(s), ☑ property owner(s), and ☑ agent(s).	
N/A	3. SITE ACCESS: If the property owner or their representatives will not accompany the Corps to the site, a signed statement from the property owner(s) allowing Corps personnel to enter the property and to collect samples during normal business hours. If the property lacks direct access by public roads (in other words, access requires passage through private property not owned by the applicant), the owner or proponent must obtain permission from the adjacent property owner(s) to provide access for Corps personnel.	Property owner and/or representatives will accompany the Corps for a site visit upon request.
Section 2.1	4. LOCATION: ☑ Directions to the survey area, ☐ an address (if available) and ☑ one or more set of geographic coordinates expressed in decimal degrees.	
Section 3.2.1	5. DELINEATION MANUAL CONFIRMATION: ☑ A statement confirming the delineation has been conducted in accordance with the 1987 Corps of Engineers Wetlands Delineation Manual and applicable regional supplement(s). ☑ The regional supplement(s) used must be identified. ☑ For OHWM delineations, a statement must be included confirming the use of the OHWM field guide or that it is not applicable.	
Section 6	6. AQUATIC RESOURCE(S) DESCRIPTION: ☑ A narrative describing all aquatic resources on-site and an explanation of the mapped boundaries and any complex transition zones. ☑ If the site contains resources that only meet one or two of the three wetland criteria or do not exhibit a clear OHWM, describe the rationale for their inclusion or exclusion from the delineation. ☑ Also explain if any erosional features, upland swales, ditches and other potential aquatic features were considered but not included in the delineation.	
Figures 1 and 6A; Section 6; Table 6	7. AQUATIC RESOURCE MAPPING AND ACREAGE: ☑ Map of the outside survey boundary, ☑ total extent of aquatic and proposed non-aquatic features, ☑ type of feature(s) (waters of the United States or wetland), and include ☑ the total acreage for each polygon.	
Section 3.2; Table 1	8. FIELD WORK DATES: ☑ Date(s) field work was completed.	
Table 6	9. AQUATIC RESOURCE TABLE: A table listing all aquatic resources. The table must include ☑ the name of each aquatic resource (actual or arbitrary), ☑ its Cowardin type, ☑ acreage, ☑ summary of OHWM/wetland presence, ☑ dominant vegetation for each, and ☑ location (latitude/longitude in decimal degrees). ☑ For linear features, the table must show both acreage and linear feet as well as channel measurements (active channel width).	
Section 4; Tables 4 and 5; Appendices C, D, and E	10. FIELD CONDITIONS: A description of existing field conditions, including ☑ current land use, ☑ normal conditions, ☑ flood/drought conditions, ☐ irrigation practices, ☑ past or recent manipulation to the site, and ☐ characteristics considered atypical (for criteria see OHWM and wetland supplement guides). ☑ Include WETS tables or pre-site visit precipitation data as appropriate: https://www.wcc.nrcs.usda.gov/climate/wets_doc.html.*	N/A for unchecked; APT data provided in

		lieu of WETS tables
Section 4.2	11. HYDROLOGY: ☑ A discussion of the hydrology at the site, including ☑ all known surface or subsurface sources, ☑ drainage gradients, ☑ downstream connections to the nearest traditional navigable waterway or interstate water, and ☑ any influence from manmade water sources such as irrigation.	
N/A	12. REMOTE SENSING: ☐ If remote sensing was used in the delineation, provide an explanation of how it was used and include the name, date and source of the tools and data used and copies of the maps/photographs.	N/A
Section 4.1; Table 2; Figure 5; Appendix E	13. SOILS: ☑ Soil descriptions, ☑ soil map(s), ☑ soil photos, and ☑ a discussion of hydric soils (for wetland delineations only).	
Figure 2	14. USGS QUADRANGLE: ☑ A site location map on a 7.5-minute USGS quadrangle. The map must provide ☑ the name of the USGS quadrangle, ☑ Section, ☑ Township, ☑ Range, and ☑ the latitude and longitude in decimal degree format.	
Appendix G	15. BULK UPLOAD FORM: ☑ For sites with 3 or more separate aquatic features a completed copy of the ORM Bulk Upload Aquatic Resources or Consolidated Excel spreadsheet must be submitted.	
Figure 6 series	16. FIGURES: ☑ Map(s) of all delineated aquatic resources in accordance with the Final Map and Drawing Standards for the South Pacific Division Regulatory Program.	
Figure 6 series and Appendix E	17. SITE PHOTOGRAPHS: ☑ Ground photographs showing representative aquatic resource sites (or lack of), ☑ as well as an accompanying map of photo-points and table of photographic information (see Final Map and Drawing Standards for the South Pacific Division Regulatory Program item no. 8 a-c).	
Appendix C	18. DATA FORMS: ☑ Completed data forms including all essential information to make a jurisdictional determination [e.g. 2006 Wetland Determination Data Form -- Arid West Supplement; 2010 Arid West Ephemeral and Intermittent Streams OHWM Datasheet].	
Section 3	19. METHODS: ☑ A description of the methods used to survey the aquatic resource boundaries. ☑ If GPS data is used, the level of accuracy must be included. Ideally, the GPS equipment should have the capability of sub-meter (<=1 meter) level horizontal accuracy.	
Appendix H	20. GIS DATA: ☑ Digital data for the site, aquatic resource boundaries, and data point locations must be provided in a geographic information system (GIS) format, preferably either ESRI shapefiles or Geodatabase format, but GoogleEarth KMZ or KML files may be acceptable non-complex projects. Each GIS data file must be accompanied by a metadata file containing the appropriate geographic coordinate system, projection, datum, and labeling description. If GIS data is unavailable or otherwise cannot be produced and the Corps determines a site visit is necessary, the aquatic resource boundaries should be physically marked with numbered flags or stakes to facilitate verification by the Corps.	

APPENDIX B

APPLICABLE AQUATIC RESOURCE PROTECTION REGULATIONS

Several regulations have been established by federal, state, and local agencies to protect and conserve aquatic resources. The descriptions below provide a brief overview of agency regulations that may be applicable to the project.

Executive Order 11990

Executive Order 11990 aims to avoid direct or indirect impacts on wetlands from federal or federally approved projects when a practicable alternative is available. If wetland impacts cannot be avoided, all practicable measures to minimize harm must be included.

Rivers and Harbors Act of 1899

The Rivers and Harbors Act of 1899 (33 U.S. Code [USC] § 401 et seq.) prohibits discharge of any material into navigable waters, or tributaries thereof, of the United States without a permit. The act also makes it a misdemeanor to excavate, fill, or alter the course, condition, or capacity of any port, harbor, or channel; or to dam navigable streams without a permit.

Many activities originally covered by the Rivers and Harbors Act are now regulated under the Clean Water Act of 1972 (CWA; 33 U.S.C. § 1251 et seq.), discussed below. However, the 1899 act retains relevance and created the structure under which the U.S. Army Corps of Engineers (Corps) oversees CWA Section 404 permitting.

Clean Water Act

Pursuant to Section 404 of the CWA, the Corps is authorized to regulate any activity that would result in the discharge of dredged or fill material into waters of the U.S. (including wetlands), which include those waters listed in 33 Code of Federal Regulations (CFR) 328.3 (51 Federal Register [FR] 41217, November 13, 1983; 53 FR 20764, June 6, 1988) and further defined by the 2001 *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers* (SWANCC; 531 U.S. 159) decision and the 2006 *Rapanos v. United States* (547 U.S. 715) decision. The Corps, with oversight from the U.S. Environmental Protection Agency (USEPA), has the principal authority to issue CWA Section 404 permits. The Corps would require a Standard Individual Permit (SIP) for more than minimal impacts to waters of the U.S. as determined by the Corps. Projects with minimal individual and cumulative adverse effects on the environment may meet the conditions of an existing Nationwide Permit (NWP).

A Water Quality Certification or waiver pursuant to Section 401 of the CWA is required for all Section 404 permitted actions. The RWQCB, a division of the State Water Resources Control Board, provides oversight of the Section 401 certification process in California. The RWQCB must certify "that there is a reasonable assurance that the activity will be conducted in a manner which will not violate water quality standards" (40 CFR 121.2(a)(3)). Water Quality Certifications must be based on the finding that a proposed discharge will comply with applicable water quality standards.

The National Pollutant Discharge Elimination System (NPDES) is the permitting program for discharge of pollutants into surface waters of the U.S. under Section 402 of the CWA.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (Water Code Section 13000 et seq.) provides for statewide coordination of water quality regulations. The SWRCB was established as the

statewide authority and nine separate RWQCBs were developed to oversee water quality on a day-to-day basis. The RWQCBs have primary responsibility for protecting water quality in California. As discussed above, the RWQCBs regulate discharges to surface waters under the CWA. In addition, the RWQCBs are responsible for administering the Porter-Cologne Water Quality Control Act.

Pursuant to the Porter-Cologne Water Quality Control Act, the state is given authority to regulate waters of the State, which are defined as any surface water or groundwater, including saline waters. As such, any person proposing to discharge waste into a water body that could affect its water quality must first file a Report of Waste Discharge if a Section 404 permit is not required for the activity. "Waste" is partially defined as any waste substance associated with human habitation, including fill material discharged into water bodies.

California Fish and Game Code Section 1600-1602

Pursuant to Division 2, Chapter 6, Section 1602 of the California Fish and Game Code (CFGC), California Department of Fish and Wildlife (CDFW) regulates all diversions, obstructions, or changes to the natural flow or bed, channel or bank of any river, stream or lake that supports fish or wildlife. A Notification of Lake or Streambed Alteration must be submitted to CDFW for "any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake." CDFW has jurisdiction over riparian habitats associated with watercourses and wetland habitats supported by a river, lake, or stream. Jurisdictional waters are delineated by the outer edge of riparian vegetation (i.e., drip line) or at the top of the bank of streams or lakes, whichever is wider. CDFW jurisdiction does not include tidal areas or isolated resources (e.g., riparian or wetland areas not supported by a river, lake, or stream). CDFW reviews the proposed actions and, if necessary, submits (to the applicant) a proposal that includes measures to protect affected fish and wildlife resources. The final proposal that is mutually agreed upon by CDFW and applicant is the Lake or Streambed Alteration Agreement.

APPENDIX C

ARID WEST WETLAND DETERMINATION DATA FORMS AND EPHEMERAL AND INTERMITTENT STREAMS OHWM DATASHEETS

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Los Peñasquitos Lagoon Restoration Project City/County: San Diego/San Diego Sampling Date: 1/12/2022

Applicant/Owner: City of San Diego State: CA Sampling Point: WDP 1

Investigator(s): Sarah Krejca, Brenda Bennett, Kelsey Woldt Section, Township, Range: T15S, R3W, Pueblo Lands of San Diego

Landform (hillslope, terrace, etc.): within drainage Local relief (concave, convex, none): Slightly concave Slope (%): 2-3%

Subregion (LRR): LRR C - Mediterranean California Lat: 32.897144 Long: -117.220109 Datum: WGS 84

Soil Map Unit Name: Salinas clay loam, 2 to 9 percent slopes NWI classification: Freshwater forested/shrub wetland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✔ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No _____	**Is the Sampled Area within a Wetland?** Yes ✔ No _____
Hydric Soil Present?	Yes ✔	No _____	
Wetland Hydrology Present?	Yes ✔	No _____	

Remarks:

Sample point taken along drainage as representative data point for southern willow scrub - disturbed vegetation community. Drought conditions per APT (i.e., atypical hydrologic conditions/naturally problematic); however, three-parameter wetland persisted.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 15-foot radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix lasiolepis	60%	Yes	FACW
2.			
3.			
4.			
	60% = Total Cover		
Sapling/Shrub Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
	N/A = Total Cover		
Herb Stratum (Plot size: 5-foot radius)			
1. Ehrharta erecta	5%	Yes	NL/UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	5% = Total Cover		
Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
	N/A = Total Cover		

% Bare Ground in Herb Stratum 90% % Cover of Biotic Crust 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	60	x 2 =	120
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	5	x 5 =	25
Column Totals:	65 (A)		145 (B)

Prevalence Index = B/A = 2.23

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

✔ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

Sample point taken within area mapped as southern willow scrub - disturbed. Fifteen-foot radius for tree stratum used to only account for vegetation within area growing under same soil and hydrologic conditions (i.e., within/directly adjacent to the drainage).

SOIL

Sampling Point: WDP 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2	10 YR 4/3	100%	N/A	N/A	N/A	N/A	Sand	No evidence of redox observed.
2-12	10 YR 3/2	95%	5 YR 4/6	5%	C	M	Silty clay loam	Prominent redox concentrations observed as soft masses.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✔ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Shovel refusal - rocks

Depth (inches): @ 12 inches

Hydric Soil Present? Yes ✔ No ___

Remarks:

Soils very wet; allowed to dry to moist conditions before recording soil color. Prominent redox concentrations occur as soft masses within soil matrix.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ✔ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ✔ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✔ Depth (inches): N/A

Water Table Present? Yes ✔ No ___ Depth (inches): 11 inches

Saturation Present? (includes capillary fringe) Yes ✔ No ___ Depth (inches): 8 inches

Wetland Hydrology Present? Yes ✔ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

Water table observed at 11 inches from soil surface; saturation observed at 8 inches from soil surface. Drift deposits present as dead plant material. Standing water present in main channel approximately 1 foot from sample point (at lower topography than sample point). Did not meet FAC-Neutral Test.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Los Peñasquitos Lagoon Restoration Project City/County: San Diego/San Diego Sampling Date: 1/12/2022

Applicant/Owner: City of San Diego State: CA Sampling Point: WDP 2

Investigator(s): Sarah Krejca, Brenda Bennett, Kelsey Woldt Section, Township, Range: T15S, R3W, Pueblo Lands of San Diego

Landform (hillslope, terrace, etc.): terrace/upland just above abrupt drop off to drainage Local relief (concave, convex, none): none Slope (%): 2-3%

Subregion (LRR): LRR C - Mediterranean California Lat: 32.897285 Long: -117.220324 Datum: WGS 84

Soil Map Unit Name: Salinas clay loam, 2 to 9 percent slopes NWI classification: Freshwater forested/shrub wetland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✔ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes ✔	No _____	

Remarks:

Upland pit associated with WDP 1. Sample point taken at top of bank just outside of drainage; directly adjacent to steep drop off into drainage. Although area mapped as southern willow scrub - disturbed, area was dominated by Arundo donax; therefore, sample point is also representative of conditions of the inaccessible area mapped as Arundo vegetation community along northeastern bank of drainage. Drought conditions per APT (i.e., atypical hydrologic conditions/naturally problematic).

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 15-foot radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix lasiolepis	20%	Yes	FACW
2. Platanus racemosa	5%	Yes	FAC
3.			
4.			
	25% = Total Cover		
Sapling/Shrub Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
	N/A = Total Cover		
Herb Stratum (Plot size: 5-foot radius)			
1. Arundo donax	50%	Yes	FACW
2. Cortaderia selloana	20%	Yes	FACU
3. Oxalis pes-caprae	5%	No	NL/UPL
4.			
5.			
6.			
7.			
8.			
	75% = Total Cover		
Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
	N/A = Total Cover		

% Bare Ground in Herb Stratum 15% % Cover of Biotic Crust 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

Sample point taken within area mapped as southern willow scrub - disturbed, although dominated by giant reed (Arundo donax). Fifteen-foot radius for tree stratum used to only account for vegetation within area growing under same soil and hydrologic conditions (i.e., within/directly adjacent to the drainage).

SOIL

Sampling Point: WDP 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-20	10 YR 4/3	100%	N/A	N/A	N/A	N/A	Sandy loam	No evidence of redox observed.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ____ No ✔

Remarks:

Dry soils; soils moistened with spray bottle to record soil color. Uniform soil throughout. No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ✔ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ✔ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No ✔ Depth (inches): N/A

Water Table Present? Yes ____ No ✔ Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes ____ No ✔ Depth (inches): N/A

Wetland Hydrology Present? Yes ✔ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

Drift deposits present as dead plant material. FAC-Neutral Test was met.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Los Peñasquitos Lagoon Restoration Project City/County: San Diego/San Diego Sampling Date: 1/12/2022

Applicant/Owner: City of San Diego State: CA Sampling Point: WDP 3

Investigator(s): Sarah Krejca, Brenda Bennett, Kelsey Woldt Section, Township, Range: T15S, R3W, Pueblo Lands of San Diego

Landform (hillslope, terrace, etc.): terrace/uplands above drainage Local relief (concave, convex, none): none Slope (%): 1-2%

Subregion (LRR): LRR C - Mediterranean California Lat: 32.897309 Long: -117.220391 Datum: WGS 84

Soil Map Unit Name: Salinas clay loam, 2 to 9 percent slopes NWI classification: Freshwater forested/shrub wetland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✔ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✔	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	

Remarks:

Upland pit associated with WDP 1. Sample point taken within southern willow scrub - disturbed vegetation community. Drought conditions per APT (i.e., atypical hydrologic conditions/naturally problematic)

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	N/A = Total Cover		
Sapling/Shrub Stratum (Plot size: 5-foot radius)			
1. Salix lasiolepis	55%	Yes	FACW
2.			
3.			
4.			
5.			
	55% = Total Cover		
Herb Stratum (Plot size: 5-foot radius)			
1. Oxalis pes-caprae	30%	Yes	NL/UPL
2. Cortaderia selloana	10%	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
	40% = Total Cover		
Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
	N/A = Total Cover		

% Bare Ground in Herb Stratum 10% % Cover of Biotic Crust 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	55	x 2 =	110
FAC species	0	x 3 =	0
FACU species	10	x 4 =	40
UPL species	30	x 5 =	150
Column Totals:	95 (A)		300 (B)

Prevalence Index = B/A = 3.16

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✔

Remarks:

Sample point taken within area mapped as southern willow-scrub disturbed.

SOIL

Sampling Point: WDP 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-20	10 YR 3/3	99%	10 YR 7/6	1	C	M	Clay loam	Prominent redox concentrations observed as soft masses.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Shovel refusal - pipe (likely gas line)

Depth (inches): @ 20 inches

Hydric Soil Present? Yes _____ No ✔

Remarks:

Dry soils; soils moistened with spray bottle to record soil color. Prominent redox concentrations occur as soft masses within soil matrix. No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): N/A

Water Table Present? Yes _____ No ✔ Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes _____ No ✔ Depth (inches): N/A

Wetland Hydrology Present? Yes _____ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

FAC-Neutral Test not met. No wetland hydrology indicators observed.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Los Peñasquitos Lagoon Restoration Project City/County: San Diego/San Diego Sampling Date: 1/12/2022

Applicant/Owner: City of San Diego State: CA Sampling Point: WDP 4

Investigator(s): Sarah Krejca, Brenda Bennett, Kelsey Woldt Section, Township, Range: T15S, R3W, Pueblo Lands of San Diego

Landform (hillslope, terrace, etc.): within drainage Local relief (concave, convex, none): slightly concave Slope (%): 0-1%

Subregion (LRR): LRR C - Mediterranean California Lat: 32.904412 Long: -117.227360 Datum: WGS 84

Soil Map Unit Name: Chino silt loam, saline, 0 to 2 percent slopes (soil rated as hydric per the NRCS) NWI classification: Riverine

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✔ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No _____	**Is the Sampled Area within a Wetland?** Yes ✔ No _____
Hydric Soil Present?	Yes ✔	No _____	
Wetland Hydrology Present?	Yes ✔	No _____	

Remarks:

Transect taken along drainage within Arundo vegetation community as representative data point. Drought conditions per APT (i.e., atypical hydrologic conditions/naturally problematic); however, three-parameter wetland persisted.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
	N/A = Total Cover		
Sapling/Shrub Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
	N/A = Total Cover		
Herb Stratum (Plot size: 5-foot linear plot)			
1. Arundo donax	35%	Yes	FACW
2. Nasturtium officinale	5%	No	OBL
3.			
4.			
5.			
6.			
7.			
8.			
	40% = Total Cover		
Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
	N/A = Total Cover		

% Bare Ground in Herb Stratum 60% % Cover of Biotic Crust 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

Sample point taken within area mapped as Arundo. Five-foot linear plot for herb stratum used to only account for vegetation within area growing under same soil and hydrologic conditions (i.e., within/directly adjacent to the drainage).

SOIL

Sampling Point: WDP 4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10 YR 3/1	95%	7.5 YR 5/8	5%	C	PL & M	Loam	Prominent redox concentrations observed as soft masses and along pore linings
4-20	10 YR 2/1	95%	7.5 YR 5/8	5%	C	PL & M	Loam	Prominent redox concentrations observed as soft masses and along pore linings

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✔ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ✔ No ___

Remarks:

Soils wet; allowed to dry to moist conditions before recording soil color. Prominent redox concentrations occur as soft masses and along pore linings within soil matrix.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ✔ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ✔ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ✔ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✔ Depth (inches): N/A

Water Table Present? Yes ✔ No ___ Depth (inches): 9 inches

Saturation Present? (includes capillary fringe) Yes ✔ No ___ Depth (inches): 6 inches

Wetland Hydrology Present? Yes ✔ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

Water table observed at 9 inches from soil surface; saturation observed at 6 inches from soil surface. Drift deposits present as dead plant material; met FAC-Neutral Test. Standing water present in main channel approximately 2 feet from sample point (at lower topography than sample point).

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Los Peñasquitos Lagoon Restoration Project City/County: San Diego/San Diego Sampling Date: 1/12/2022

Applicant/Owner: City of San Diego State: CA Sampling Point: WDP 5

Investigator(s): Sarah Krejca, Brenda Bennett, Kelsey Woldt Section, Township, Range: T15S, R3W, Pueblo Lands of San Diego

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 0-2%

Subregion (LRR): LRR C - Mediterranean California Lat: 32.904374 Long: -117.227402 Datum: WGS 84

Soil Map Unit Name: Chino silt loam, saline, 0 to 2 percent slopes (soil rated as hydric per the NRCS) NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✔ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✔	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	

Remarks:

Transect taken within southern arroyo willow riparian forest vegetation community as representative data point. Drought conditions per APT (i.e., atypical hydrologic conditions/naturally problematic).

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
	N/A = Total Cover		
Sapling/Shrub Stratum (Plot size: 10-foot linear plot)			
1. Salix lasiolepis	20%	Yes	FACW
2.			
3.			
4.			
5.			
	20% = Total Cover		
Herb Stratum (Plot size: 5-foot linear plot)			
1. Oxalis pes-caprae	90%	Yes	NL/UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	90% = Total Cover		
Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
	N/A = Total Cover		

% Bare Ground in Herb Stratum 5% % Cover of Biotic Crust 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✔

Remarks:

Sample point taken within area mapped as southern arroyo willow riparian forest. Ten-foot linear plot for shrub/sapling stratum and five-foot linear plot for herb stratum used to account for vegetation within area growing under same soil and hydrologic conditions.

SOIL

Sampling Point: WDP 5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-20	10YR 3/4	100%	N/A	N/A	N/A	N/A	Loamy sand	No evidence of redox observed.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes _____ No ✔

Remarks:

Dry soils; soils moistened with spray bottle to record soil color. Uniform soil throughout. No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ✔ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): N/A

Water Table Present? Yes _____ No ✔ Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes _____ No ✔ Depth (inches): N/A

Wetland Hydrology Present? Yes _____ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

FAC-Neutral Test was met; however, no other wetland hydrology indicators observed.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Los Peñasquitos Lagoon Restoration Project City/County: San Diego/San Diego Sampling Date: 1/12/2022

Applicant/Owner: City of San Diego State: CA Sampling Point: WDP 6

Investigator(s): Sarah Krejca, Brenda Bennett, Kelsey Woldt Section, Township, Range: T14S, R3W, Pueblo Lands of San Diego

Landform (hillslope, terrace, etc.): terrace/floodplain Local relief (concave, convex, none): slightly concave Slope (%): 2-3%

Subregion (LRR): LRR C - Mediterranean California Lat: 32.908098 Long: -117.233107 Datum: WGS 84

Soil Map Unit Name: Chino silt loam, saline, 0 to 2 percent slopes (soil rated as hydric per the NRCS) NWI classification: Freshwater forested/shrub wetland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✔ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No _____	**Is the Sampled Area within a Wetland?** Yes ✔ No _____
Hydric Soil Present?	Yes ✔	No _____	
Wetland Hydrology Present?	Yes ✔	No _____	

Remarks:

Sample point taken within southern arroyo willow riparian forest vegetation community as representative data point, between hillslope and standing water. Drought conditions per APT (i.e., atypical hydrologic conditions/naturally problematic); however, wetland conditions persisted.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 15-foot radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix lasiolepis	35%	Yes	FACW
2.			
3.			
4.			
	35% = Total Cover		
Sapling/Shrub Stratum (Plot size: 5-foot radius)			
1. Baccharis salicifolia	5%	Yes	FAC
2.			
3.			
4.			
5.			
	5% = Total Cover		
Herb Stratum (Plot size: 5-foot radius)			
1. Bolboschoenus maritimus	50%	Yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	50% = Total Cover		
Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
	N/A = Total Cover		

% Bare Ground in Herb Stratum 15% % Cover of Biotic Crust 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

Sample point taken within area mapped as southern arroyo willow riparian forest. Fifteen-foot radius for tree stratum used to only account for vegetation within area growing under same soil and hydrologic conditions (i.e., within/directly adjacent to the drainage). Bolboschoenus maritimus is synonymous with Schoenoplectus maritimus (OBL) per the NWPL.

SOIL

Sampling Point: WDP 6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-20	10 YR 3/2	72%	10 YR 3/6	8%	C	M	Silty clay	Prominent redox concentrations observed as soft masses.
	10 YR 2/1	10%					Silty clay	Prominent redox concentrations observed as soft masses.
	10 YR 4/1	10%					Silty clay	Prominent redox concentrations observed as soft masses.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✔ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ✔ No ___

Remarks:

Prominent redox concentrations observed as soft masses within soil matrix. Tree roots made digging difficult but still able to dig to 20 inches.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ✔ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ✔ Sediment Deposits (B2) (**Riverine**)
- ✔ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✔ Depth (inches): N/A

Water Table Present? Yes ✔ No ___ Depth (inches): 11 inches

Saturation Present? (includes capillary fringe) Yes ___ No ✔ Depth (inches): N/A

Wetland Hydrology Present? Yes ✔ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

Water table observed at 11 inches from soil surface. Drift deposits present as dead plant material; sediment deposits on tree bases and branches. FAC-Neutral Test was met. Sample point taken approximately 3 feet from standing water.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Los Peñasquitos Lagoon Restoration Project City/County: San Diego/San Diego Sampling Date: 1/12/2022

Applicant/Owner: City of San Diego State: CA Sampling Point: WDP 7

Investigator(s): Sarah Krejca, Brenda Bennett, Kelsey Woldt Section, Township, Range: T14S, R3W, Pueblo Lands of San Diego

Landform (hillslope, terrace, etc.): upslope from drainage Local relief (concave, convex, none): convex Slope (%): 0-1%

Subregion (LRR): LRR C - Mediterranean California Lat: 32.908101 Long: -117.233133 Datum: WGS 84

Soil Map Unit Name: Terrace escarpments NWI classification: Freshwater forested/shrub wetland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✔ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✔	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	

Remarks:

Upland pit associated with WDP 6. Drought conditions per APT (i.e., atypical hydrologic conditions/naturally problematic).

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	N/A	= Total Cover	
Sapling/Shrub Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
	N/A	= Total Cover	
Herb Stratum (Plot size: 5-foot radius)			
1. Bromus rubens	20%	Yes	UPL
2. Medicago polymorpha	20%	Yes	FACU
3. Hypochaeris glabia	20%	Yes	NL/UPL
4. Hirschfeldia incana	15%	No	NL/UPL
5. Helminthotheca echioides	10%	No	FAC
6.			
7.			
8.			
	85%	= Total Cover	
Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
	N/A	= Total Cover	

% Bare Ground in Herb Stratum 15% % Cover of Biotic Crust 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✔

Remarks:

Sample point taken adjacent to dirt road within highly disturbed area, which appears to be regularly mowed. Bromus rubens is synonymous with Bromus madritensis (UPL) for the NWPL. Hydric soil and hydrology parameters not met; thus, prevalence index worksheet not required/needed.

SOIL

Sampling Point: WDP 7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	10 YR 4/3	80%	10 YR 5/8	15%	C	M	Silty clay loam	Prominent redox concentrations observed as soft masses.
			10 YR 5/1	5%	C	M	Silty clay loam	Prominent redox concentrations observed as soft masses.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: shovel refusal - likely bedrock

Depth (inches): @ 18 inches

Hydric Soil Present? Yes _____ No ✔

Remarks:

Prominent redox concentrations observed as soft masses within soil matrix; however, no hydric soil indicator(s) met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): N/A

Water Table Present? Yes _____ No ✔ Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes _____ No ✔ Depth (inches): N/A

Wetland Hydrology Present? Yes _____ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

Did not meet FAC-Neutral Test. No wetland hydrology indicators observed.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Los Peñasquitos Lagoon Restoration Project City/County: San Diego/San Diego Sampling Date: 1/20/2022

Applicant/Owner: City of San Diego State: CA Sampling Point: WDP 8

Investigator(s): Sarah Krejca, Kelsey Woldt Section, Township, Range: T14S, R3W, Pueblo Lands of San Diego

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Slightly concave Slope (%): 0-1%

Subregion (LRR): LRR C - Mediterranean California Lat: 32.911905 Long: -117.235943 Datum: WGS 84

Soil Map Unit Name: Chino silt loam, saline, 0 to 2 percent slopes (soil rated as hydric per the NRCS) NWI classification: Forested shrub/riparian

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✔ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No _____	**Is the Sampled Area within a Wetland?** Yes ✔ No _____
Hydric Soil Present?	Yes ✔	No _____	
Wetland Hydrology Present?	Yes ✔	No _____	

Remarks:

Representative sample point taken within southern arroyo willow riparian forest vegetation community. Drought conditions per APT (i.e., atypical hydrologic conditions/naturally problematic); however, three-parameter wetland persisted.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 15-foot radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix lasiolepis	75%	Yes	FACW
2.			
3.			
4.			
	75%	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5-foot radius)			
1. Iva hayesiana	5%	Yes	FACW
2.			
3.			
4.			
5.			
	5%	= Total Cover	
Herb Stratum (Plot size: 5-foot radius)			
1. Malvella leprosa	20%	Yes	FACU
2. Tropaeolum majus	13%	Yes	UPL
3. Juncus mexicanus	10%	Yes	FACW
4. Helminthotheca echioides	3%	No	FAC
5. Raphanus sativus	2%	No	NL/UPL
6. Apium graveolens	1%	No	NL/UPL
7. Anemopsis californica	1%	No	OBL
8.			
	50%	= Total Cover	
Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
	N/A	= Total Cover	

% Bare Ground in Herb Stratum 50% % Cover of Biotic Crust 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

Sample point taken within area mapped as southern arroyo willow riparian forest.

SOIL

Sampling Point: WDP 8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2	10 YR 2/2	100%	N/A	N/A	N/A	N/A	Silty clay	No redox observed
2-20	10 YR 3/2	85%	7.5 YR 4/6	15%	C	M	Silty clay	Prominent redox observed as soft masses

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ✓ No ___

Remarks:

Soils very wet; allowed to dry to moist conditions before recording soil color. Prominent redox concentrations observed as soft masses within soil matrix from 2 to 20 inches.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ✓ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): N/A

Water Table Present? Yes ___ No ✓ Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): N/A

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

Drift deposits observed as dead plant material. FAC-Neutral test met.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Los Peñasquitos Lagoon Restoration Project City/County: San Diego/San Diego Sampling Date: 1/20/2022

Applicant/Owner: City of San Diego State: CA Sampling Point: WDP 9

Investigator(s): Sarah Krejca, Kelsey Woldt Section, Township, Range: T14S, R3W, Pueblo Lands of San Diego

Landform (hillslope, terrace, etc.): Slight slope Local relief (concave, convex, none): None Slope (%): 0-1%

Subregion (LRR): LRR C - Mediterranean California Lat: 32.911901 Long: -117.236059 Datum: WGS 84

Soil Map Unit Name: Corralitos loamy sand, 5 to 9 percent slopes NWI classification: Forested shrub/riparian

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✔	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	

Remarks:

Representative sample point taken within Diegan coastal sage scrub vegetation community; upland pit associated with WDP 8. Drought conditions per APT (i.e., atypical hydrologic conditions/naturally problematic).

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	N/A = Total Cover		
Sapling/Shrub Stratum (Plot size: 5-foot radius)			
1. Baccharis sarothroides	70%	Yes	FACU
2.			
3.			
4.			
5.			
	70% = Total Cover		
Herb Stratum (Plot size: 5-foot radius)			
1. Helminthotheca echioides	10%	Yes	FAC
2. Raphanus sativus	2%	No	NL/UPL
3. Tropaeolum majus	1%	No	UPL
4.			
5.			
6.			
7.			
8.			
	13% = Total Cover		
Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
	N/A = Total Cover		

% Bare Ground in Herb Stratum 10% % Cover of Biotic Crust 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✔

Remarks:

Sample point taken within area mapped as Diegan coastal sage scrub. Hydric soil and wetland hydrology parameters not met; thus, prevalence index worksheet not required/needed.

SOIL

Sampling Point: WDP 9

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2	10 YR 3/2	100%	N/A	N/A	N/A	N/A	Silty clay	No evidence of redox observed.
2-20	10 YR 4/2	98%	7.5 YR 4/6	2%	C	M	Silty clay	Prominent redox concentrations observed as soft masses.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes _____ No ✓

Remarks:

Prominent redox concentrations observed as soft masses within soil matrix at 2 to 20 inches; however, no hydric soil indicator(s) met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ✓ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): N/A

Water Table Present? Yes _____ No ✓ Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): N/A

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

Drift deposits present as dead plant material. FAC-Neutral Test was not met. No wetland hydrology indicators observed.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Los Peñasquitos Lagoon Restoration Project City/County: San Diego/San Diego Sampling Date: 1/11/2022

Applicant/Owner: City of San Diego State: CA Sampling Point: WDP 10

Investigator(s): Brenda Bennett, Kelsey Woldt Section, Township, Range: T14S, R4W, Pueblo Lands of San Diego

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): slightly concave Slope (%): 0-1%

Subregion (LRR): LRR C - Mediterranean California Lat: 32.915742 Long: -117.238526 Datum: WGS 84

Soil Map Unit Name: Chino silt loam, saline, 0 to 2 percent slopes (soil rated as hydric per the NRCS) NWI classification: Freshwater emergent wetland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✔ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No _____	**Is the Sampled Area within a Wetland?** Yes ✔ No _____
Hydric Soil Present?	Yes ✔	No _____	
Wetland Hydrology Present?	Yes ✔	No _____	

Remarks:

Transect taken within southern arroyo willow riparian forest vegetation community as representative data point. Drought conditions per APT (i.e., atypical hydrologic conditions/naturally problematic); however, wetland conditions persisted.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10-foot radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix lasiolepis	60%	Yes	FACW
2.			
3.			
4.			
	60% = Total Cover		
Sapling/Shrub Stratum (Plot size: 10-foot radius)			
1. Baccharis salicifolia	5%	Yes	FAC
2.			
3.			
4.			
5.			
	5% = Total Cover		
Herb Stratum (Plot size: 5-foot radius)			
1. Raphanus sativa	20%	Yes	NL/UPL
2. Bromus diandrus	20%	Yes	NL/UPL
3. Paspalum dilatatum	20%	Yes	FAC
4. Galium aparine	3%	No	FACU
5. Daucus pusillus	1%	No	NL/UPL
6. Tropaeolum majus	1%	No	UPL
7. Oxalis pes-caprae	1%	No	NL/UPL
8.			
	66% = Total Cover		
Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
	N/A = Total Cover		

% Bare Ground in Herb Stratum 5% % Cover of Biotic Crust 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

Sample point taken within area mapped as southern arroyo willow riparian forest. Ten-foot linear plot for tree stratum and shrub/sapling stratum used to account for vegetation within area growing under same soil and hydrologic conditions and provide accurate representation of general makeup within this vegetation community.

SOIL

Sampling Point: WDP 10

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-20	10 YR 3/2	95%	10 YR 5/6	5%	C	M	Silty clay	Prominent redox concentrations observed as soft masses.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✔ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ✔ No ___

Remarks:

Soils very wet; allowed to dry to moist conditions before recording soil color. Prominent redox concentrations occur as soft masses within soil matrix.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ✔ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ✔ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✔ Depth (inches): N/A

Water Table Present? Yes ___ No ✔ Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes ___ No ✔ Depth (inches): N/A

Wetland Hydrology Present? Yes ✔ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

Drift deposits present as dead plant material. FAC-Neutral Test was met.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Los Peñasquitos Lagoon Restoration Project City/County: San Diego/San Diego Sampling Date: 1/11/2022

Applicant/Owner: City of San Diego State: CA Sampling Point: WDP 11

Investigator(s): Sarah Krejca, Ian Hirschler Section, Township, Range: T14S, R4W, Pueblo Lands of San Diego

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Slightly concave Slope (%): 0-1%

Subregion (LRR): LRR C - Mediterranean California Lat: 32.915803 Long: -117.239039 Datum: WGS 84

Soil Map Unit Name: Chino silt loam, saline, 0 to 2 percent slopes (soil rated as hydric per the NRCS) NWI classification: Freshwater emergent wetland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✔ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No _____	**Is the Sampled Area within a Wetland?** Yes ✔ No _____
Hydric Soil Present?	Yes ✔	No _____	
Wetland Hydrology Present?	Yes ✔	No _____	

Remarks:

Transect taken within mulefat scrub vegetation community as representative data point. Drought conditions per APT (i.e., atypical hydrologic conditions/naturally problematic); however, wetland conditions persisted.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
	N/A = Total Cover		
Sapling/Shrub Stratum (Plot size: 5-foot radius)			
1. Baccharis salicifolia	70%	Yes	FAC
2.			
3.			
4.			
5.			
	70% = Total Cover		
Herb Stratum (Plot size: 5-foot radius)			
1. Frankenia salina	40%	Yes	FACW
2. Raphanus sativa	30%	Yes	NL/UPL
3. Distichlis spicata	10%	No	FAC
4.			
5.			
6.			
7.			
8.			
	80% = Total Cover		
Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
	N/A = Total Cover		

% Bare Ground in Herb Stratum 0% % Cover of Biotic Crust 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

Sample point taken within area mapped as mulefat scrub.

SOIL

Sampling Point: WDP 11

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-20	10 YR 3/2	95%	10 YR 5/8	5%	C	M	Silty clay	Prominent redox concentrations observed as soft masses.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✔ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ✔ No ___

Remarks:

Soils very wet; allowed to dry to moist conditions before recording soil color. Prominent redox concentrations occur as soft masses within soil matrix.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ✔ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ✔ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✔ Depth (inches): N/A

Water Table Present? Yes ✔ No ___ Depth (inches): 11 inches

Saturation Present? (includes capillary fringe) Yes ✔ No ___ Depth (inches): 8 inches

Wetland Hydrology Present? Yes ✔ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

Water table observed at 11 inches from soil surface; saturation observed at 8 inches from soil surface. FAC-Neutral Test was met.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Los Peñasquitos Lagoon Restoration Project City/County: San Diego/San Diego Sampling Date: 1/11/2022

Applicant/Owner: City of San Diego State: CA Sampling Point: WDP 12

Investigator(s): Sarah Krejca, Brenda Bennett, Kelsey Woldt Section, Township, Range: T14S, R4W, Pueblo Lands of San Diego

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): slightly concave Slope (%): 0-1%

Subregion (LRR): LRR C - Mediterranean California Lat: 32.915614 Long: -117.239439 Datum: WGS 84

Soil Map Unit Name: Chino silt loam, saline, 0 to 2 percent slopes (soil rated as hydric per the NRCS) NWI classification: Freshwater emergent wetland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✔ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No _____	**Is the Sampled Area within a Wetland?** Yes ✔ No _____
Hydric Soil Present?	Yes ✔	No _____	
Wetland Hydrology Present?	Yes ✔	No _____	

Remarks:

Transect taken within southern coastal salt marsh - degraded as representative data point. Drought conditions per APT (i.e., atypical hydrologic conditions/naturally problematic); however, wetland conditions persisted.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
	N/A = Total Cover		
Sapling/Shrub Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
	N/A = Total Cover		
Herb Stratum (Plot size: 5-foot radius)			
1. Frankenia salina	80%	Yes	FACW
2. Festuca perennis	15%	No	FAC
3. Malvella leprosa	4%	No	FACU
4.			
5.			
6.			
7.			
8.			
	99% = Total Cover		
Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
	N/A = Total Cover		

% Bare Ground in Herb Stratum 1% % Cover of Biotic Crust 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

Sample point taken within area mapped as southern coastal salt marsh - degraded. Festuca perennis is synonymous with Lolium perenne (FAC) per the NWPL.

SOIL

Sampling Point: WDP 12

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-20	10 YR 3/2	95%	10 YR 4/6	5%	C	M	Silty clay	Prominent redox concentrations observed as soft masses.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✔ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ✔ No ___

Remarks:

Soils very wet; allowed to dry to moist conditions before recording soil color. Prominent redox concentrations occur as soft masses within soil matrix.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ✔ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ✔ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✔ Depth (inches): N/A

Water Table Present? Yes ✔ No ___ Depth (inches): 11 inches

Saturation Present? (includes capillary fringe) Yes ✔ No ___ Depth (inches): 10 inches

Wetland Hydrology Present? Yes ✔ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

Water table observed at 11 inches from soil surface; saturation observed at 10 inches from soil surface. FAC-Neutral Test was met.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Los Peñasquitos Lagoon Restoration Project City/County: San Diego/San Diego Sampling Date: 1/11/2022

Applicant/Owner: City of San Diego State: CA Sampling Point: WDP 13

Investigator(s): Sarah Krejca, Ian Hirschler Section, Township, Range: T14S, R4W, Pueblo Lands of San Diego

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): None Slope (%): 0-1%

Subregion (LRR): LRR C - Mediterranean California Lat: 32.915222 Long: -117.240349 Datum: WGS 84

Soil Map Unit Name: Chino silt loam, saline, 0 to 2 percent slopes (soil rated as hydric per the NRCS) NWI classification: Freshwater emergent wetland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✔ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔ No _____	**Is the Sampled Area within a Wetland?** Yes ✔ No _____
Hydric Soil Present?	Yes ✔ No _____	
Wetland Hydrology Present?	Yes ✔ No _____	

Remarks:

Transect taken within coastal brackish marsh vegetation community as representative data point. Drought conditions per APT (i.e., atypical hydrologic conditions/naturally problematic); however, wetland conditions persisted.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	N/A = Total Cover		
Sapling/Shrub Stratum (Plot size: 5-foot radius)			
1. Salix lasiolepis	10%	Yes	FACW
2.			
3.			
4.			
5.			
	10% = Total Cover		
Herb Stratum (Plot size: 5-foot radius)			
1. Anemopsis californica	75%	Yes	OBL
2. Frankenia salina	10%	No	FACW
3. Distichlis spicata	7%	No	FAC
4. Typha sp.	5%	No	OBL
5. Juncus mexicanus	3%	No	FACW
6.			
7.			
8.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
	N/A = Total Cover		

% Bare Ground in Herb Stratum 0% % Cover of Biotic Crust 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

Sample point taken within area mapped as coastal brackish marsh. Typha sp. was difficult to key to species; however, all possible Typha are OBL.

SOIL

Sampling Point: WDP 13

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-20	10 YR 3/2	90%	7.5 YR 4/6	10%	C	M	Silty clay	Prominent redox concentrations observed as soft masses.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✔ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ✔ No ___

Remarks:

Soils very wet; allowed to dry to moist conditions before recording soil color. Prominent redox concentrations occur as soft masses within soil matrix.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ✔ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ✔ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✔ Depth (inches): N/A

Water Table Present? Yes ✔ No ___ Depth (inches): 6 inches

Saturation Present? (includes capillary fringe) Yes ✔ No ___ Depth (inches): 4 inches

Wetland Hydrology Present? Yes ✔ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

Water table observed at 6 inches from soil surface; saturation observed at 4 inches from soil surface. FAC-Neutral Test was met.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Los Peñasquitos Lagoon Restoration Project City/County: San Diego/San Diego Sampling Date: 1/11/2022

Applicant/Owner: City of San Diego State: CA Sampling Point: WDP 14

Investigator(s): Sarah Krejca, Ian Hirschler Section, Township, Range: T14S, R4W, Pueblo Lands of San Diego

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): convex Slope (%): 2-3%

Subregion (LRR): LRR C - Mediterranean California Lat: 32.915087 Long: -117.240652 Datum: WGS 84

Soil Map Unit Name: Corralitos loamy sand, 5 to 9 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✓ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology ✓ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

Transect taken within Diegan coastal sage scrub vegetation community as representative data point; upland pit associated with transect (WDP 10 through WDP 13). Drought conditions per APT (i.e., atypical hydrologic conditions/naturally problematic)

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	N/A = Total Cover		
Sapling/Shrub Stratum (Plot size: 5-foot radius)			
1. Baccharis pilularis	35%	Yes	NL/UPL
2. Artemisia californica	13%	Yes	NL/UPL
3. Lonicera subspicata	2%	No	NL/UPL
4.			
5.			
	50% = Total Cover		
Herb Stratum (Plot size: 5-foot radius)			
1. Bromus rubens	30%	Yes	UPL
2. Juncus mexicanus	20%	Yes	FACW
3. Ambrosia psilostachya	1%	No	FACU
4. Pseudognaphalium californica	1%	No	NL/UPL
5.			
6.			
7.			
8.			
	52% = Total Cover		
Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 10% % Cover of Biotic Crust 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

Sample point taken within area mapped as Diegan coastal sage scrub. Bromus rubens is synonymous with Bromus madritensis (UPL) per NWPL. Hydric soil and wetland hydrology parameters not met; thus, prevalence index worksheet not required/needed.

SOIL

Sampling Point: WDP 14

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-20	10 YR 3/3	100%	N/A	N/A	N/A	N/A	Loamy sand	No redox features observed.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes _____ No ✓

Remarks:

Dry soils; soils moistened with spray bottle to record soil color. Uniform soil throughout. No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): N/A

Water Table Present? Yes _____ No ✓ Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): N/A

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

FAC Neutral Test not met. No wetland hydrology indicators observed.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Los Peñasquitos Lagoon Restoration Project City/County: San Diego/San Diego Sampling Date: 1/11/2022

Applicant/Owner: City of San Diego State: CA Sampling Point: WDP 15

Investigator(s): Sarah Krejca, Ian Hirschler Section, Township, Range: T14S, R4W, Pueblo Lands of San Diego

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Slightly concave Slope (%): 0-1%

Subregion (LRR): LRR C - Mediterranean California Lat: 32.918841 Long: -117.241734 Datum: WGS 84

Soil Map Unit Name: Chino silt loam, saline, 0 to 2 percent slopes (soil rated as hydric per the NRCS) NWI classification: Freshwater emergent wetland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✔ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No _____	**Is the Sampled Area within a Wetland?** Yes ✔ No _____
Hydric Soil Present?	Yes ✔	No _____	
Wetland Hydrology Present?	Yes ✔	No _____	

Remarks:

Transect taken within southern willow scrub vegetation community as representative sample point. Drought conditions per APT (i.e., atypical hydrologic conditions/naturally problematic); however, three-parameter wetland persisted.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 15-foot radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix laevigata	60%	Yes	FACW
2.			
3.			
4.			
	60%	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5-foot radius)			
1. Iva hayesiana	40%	Yes	FACW
2.			
3.			
4.			
5.			
	40%	= Total Cover	
Herb Stratum (Plot size: 5-foot radius)			
1. Schoenoplectus americanus	25%	Yes	OBL
2. Anemopsis californica	4%	No	OBL
3. Toxicodendron diversilobum	1%	No	FACU
4.			
5.			
6.			
7.			
8.			
	30%	= Total Cover	
Woody Vine Stratum (Plot size: 5-foot radius)			
1. Rubus ursinus	10	Yes	FAC
2.			
	10%	= Total Cover	

% Bare Ground in Herb Stratum 30% % Cover of Biotic Crust 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

Sample point taken within area mapped as southern willow scrub. Fifteen-foot radius for tree stratum used to only account for vegetation within area growing under same soil and hydrologic conditions.

SOIL

Sampling Point: WDP 15

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-20	10 YR 3/2	95%	10 YR 5/6	5%	C	M	Silty clay	Prominent redox concentrations observed as soft masses

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✔ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ✔ No ___

Remarks:

Soils very wet; allowed to dry to moist conditions before recording soil color. Prominent redox concentrations occur as soft masses within soil matrix.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ✔ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ✔ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✔ Depth (inches): N/A

Water Table Present? Yes ✔ No ___ Depth (inches): 9 inches

Saturation Present? (includes capillary fringe) Yes ✔ No ___ Depth (inches): 2 inches

Wetland Hydrology Present? Yes ✔ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Water table observed at 9 inches from soil surface; saturation observed at 2 inches from soil surface. FAC-Neutral Test was met.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Los Peñasquitos Lagoon Restoration Project City/County: San Diego/San Diego Sampling Date: 1/11/2022

Applicant/Owner: City of San Diego State: CA Sampling Point: WDP 16

Investigator(s): Sarah Krejca, Brenda Bennett, Kelsey Woldt Section, Township, Range: T14S, R4W, Pueblo Lands of San Diego

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Slightly concave Slope (%): 0-1%

Subregion (LRR): LRR C - Mediterranean California Lat: 32.918773 Long: -117.242085 Datum: WGS 84

Soil Map Unit Name: Chino silt loam, saline, 0 to 2 percent slopes (soil rated as hydric per the NRCS) NWI classification: Freshwater emergent wetland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✔ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No _____	**Is the Sampled Area within a Wetland?** Yes ✔ No _____
Hydric Soil Present?	Yes ✔	No _____	
Wetland Hydrology Present?	Yes ✔	No _____	

Remarks:

Transect taken within mule fat scrub vegetation community as representative sample point. Drought conditions per APT (i.e., atypical hydrologic conditions/naturally problematic); however, three-parameter wetland persisted.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	N/A = Total Cover		
Sapling/Shrub Stratum (Plot size: 5 ft from pit, N, S, W)			
1. Baccharis salicifolia	40%	Yes	FAC
2.			
3.			
4.			
5.			
	40% = Total Cover		
Herb Stratum (Plot size: 5 ft from pit, N, S, W)			
1. Schoenoplectus americanus	75%	Yes	OBL
2. Frankenia salina	8%	No	FACW
3. Anemopsis californica	2%	No	OBL
4.			
5.			
6.			
7.			
8.			
	85% = Total Cover		
Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
	N/A = Total Cover		

% Bare Ground in Herb Stratum 15% % Cover of Biotic Crust 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

Sample point taken within area mapped as mulefat scrub. Vegetation data collected five feet from sample point in all directions (north, south, west) except east to exclude adjacent foot path.

SOIL

Sampling Point: WDP 16

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-3	10 YR 2/2	92%	7.5 YR 5/6	8%	C	M	Silty clay	Prominent redox concentrations observed as soft masses.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✔ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Shovel refusal - likely rocks

Depth (inches): @ 14 inches

Hydric Soil Present? Yes ✔ No ___

Remarks:

Soils very wet; allowed to dry to moist conditions before recording soil color. Water table observed at 3 inches. Soils difficult to assess below water table but hydric soil indicator observed in top 3 inches. Prominent redox concentrations occur as soft masses within soil matrix.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ✔ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ✔ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ✔ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✔ Depth (inches): ___

Water Table Present? Yes ✔ No ___ Depth (inches): 3 inches

Saturation Present? (includes capillary fringe) Yes ✔ No ___ Depth (inches): 0 inches

Wetland Hydrology Present? Yes ✔ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

Water table observed at 3 inches from soil surface; saturation observed at 0 inches from soil surface. Drift deposits present as dead plant material. FAC-Neutral Test was met.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Los Peñasquitos Lagoon Restoration Project City/County: San Diego/San Diego Sampling Date: 1/11/2022

Applicant/Owner: City of San Diego State: CA Sampling Point: WDP 17

Investigator(s): Ian Hirschler, Shanti Santulli Section, Township, Range: T14S, R4W, Pueblo Lands of San Diego

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Concave Slope (%): 0-1%

Subregion (LRR): LRR C - Mediterranean California Lat: 32.918226 Long: -117.242442 Datum: WGS 84

Soil Map Unit Name: Chino silt loam, saline, 0 to 2 percent slopes (soil rated as hydric per the NRCS) NWI classification: Freshwater emergent wetland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✔ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔ No _____	**Is the Sampled Area within a Wetland?** Yes ✔ No _____
Hydric Soil Present?	Yes ✔ No _____	
Wetland Hydrology Present?	Yes ✔ No _____	

Remarks:

Transect taken within southern coastal salt marsh - degraded vegetation community as representative sample point. Drought conditions per APT (i.e., atypical hydrologic conditions/naturally problematic); however, three-parameter wetland persisted.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
	N/A = Total Cover		
Sapling/Shrub Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
	N/A = Total Cover		
Herb Stratum (Plot size: 5-foot radius)			
1. Festuca perennis	72%	Yes	FAC
2. Frankenia salina	25%	Yes	FACW
3. Xanthium strumarium	1%	No	FAC
4. Rumex crispus	1%	No	FAC
5. Salicornia pacifica	1%	No	OBL
6.			
7.			
8.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
	N/A = Total Cover		

% Bare Ground in Herb Stratum 0% % Cover of Biotic Crust 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

Sample point taken within area mapped as southern coastal salt marsh - degraded. Festuca perennis is synonymous with Lolium perenne (FAC).

SOIL

Sampling Point: WDP 17

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10 YR 3/1	90%	5 YR 4/6	10%	C	PL	Silty clay	Prominent redox concentrations observed along pore linings.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ✓ No ___

Remarks:

Soils very wet; allowed to dry to moist conditions before recording soil color. Water table present at 4 inches. Soils difficult to assess below water table but hydric soil indicator observed in top 4 inches. Prominent redox concentrations occur as soft masses within soil matrix.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ✓ No ___ Depth (inches): 3 inches deep

Water Table Present? Yes ✓ No ___ Depth (inches): 4 inches

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 0 inches

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

Sample point taken in area with surface water present adjacent to pit, although not at pit. Water table observed at 4 inches from soil surface; saturation observed at 0 inches from soil surface. FAC-Neutral Test was met.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Los Peñasquitos Lagoon Restoration Project City/County: San Diego/San Diego Sampling Date: 1/11/2022

Applicant/Owner: City of San Diego State: CA Sampling Point: WDP 18

Investigator(s): Ian Hirschler, Brenda Bennett, Shanti Santulli Section, Township, Range: T14S, R4W, Pueblo Lands of San Diego

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Concave Slope (%): 0-1%

Subregion (LRR): LRR C - Mediterranean California Lat: 32.917866 Long: -117.243240 Datum: WGS 84

Soil Map Unit Name: Chino silt loam, saline, 0 to 2 percent slopes (soil rated as hydric per the NRCS) NWI classification: Freshwater emergent wetland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✔ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔ No _____	**Is the Sampled Area within a Wetland?** Yes ✔ No _____
Hydric Soil Present?	Yes ✔ No _____	
Wetland Hydrology Present?	Yes ✔ No _____	

Remarks:

Transect taken within coastal and valley freshwater marsh vegetation community as representative sample point. Drought conditions per APT (i.e., atypical hydrologic conditions/naturally problematic); however, three-parameter wetland persisted.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 5-foot radius)			
1. Schoenoplectus americanus	70%	Yes	OBL
2. Frankenia salina	25%	Yes	FACW
3.			
4.			
5.			
	95% = Total Cover		
Herb Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	N/A = Total Cover		
Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
	N/A = Total Cover		

% Bare Ground in Herb Stratum 5% % Cover of Biotic Crust 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

Sample point taken within area mapped as coastal and valley freshwater marsh.

SOIL

Sampling Point: WDP 18

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-7	10 YR 2/2	95%	7.5 YR 4/4	5%	C	M	Clay loam	Prominent redox concentrations observed as soft masses

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ✓ No ___

Remarks:

Soils very wet; allowed to dry to moist conditions before recording soil color. Water table present at 7 inches. Soils difficult to assess below water table but hydric soil indicator observed in top 7 inches. Prominent redox concentrations occur as soft masses within soil matrix.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ✓ No ___ Depth (inches): 1 inch deep

Water Table Present? Yes ✓ No ___ Depth (inches): 4 inches

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 0 inches

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

Sample point taken in area surrounded by pockets of surface water. Water table observed at 4 inches from soil surface; saturation observed at 0 inches from soil surface. FAC-Neutral Test was met.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Los Peñasquitos Lagoon Restoration Project City/County: San Diego/San Diego Sampling Date: 1/11/2022

Applicant/Owner: City of San Diego State: CA Sampling Point: WDP 19

Investigator(s): Sarah Krejca, Kelsey Woldt Section, Township, Range: T14S, R4W, Pueblo Lands of San Diego

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-1%

Subregion (LRR): LRR C - Mediterranean California Lat: 32.917631 Long: -117.243710 Datum: WGS 84

Soil Map Unit Name: Corralitos loamy sand, 5 to 9 percent slopes NWI classification: Freshwater emergent wetland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✔ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✔	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	

Remarks:

Transect taken within Diegan coastal sage scrub vegetation community as representative sample point; upland pit associated with transect (WDP 15 through WDP 18). Drought conditions per APT (i.e., atypical hydrologic conditions/naturally problematic).

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	N/A = Total Cover		
Sapling/Shrub Stratum (Plot size: 5-foot radius)			
1. Bacharis sarothroides	55%	Yes	FACU
2.			
3.			
4.			
5.			
	55% = Total Cover		
Herb Stratum (Plot size: 5-foot radius)			
1. Distichlis spicata	25%	Yes	FAC
2. Ambrosia psilostachya	3%	No	FACU
3. Helminthotheca echioides	3%	No	FAC
4. Frankenia salina	2%	No	FACW
5.			
6.			
7.			
8.			
	33% = Total Cover		
Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
	N/A = Total Cover		

% Bare Ground in Herb Stratum 20% % Cover of Biotic Crust 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✔

Remarks:

Sample point taken within area mapped as Diegan coastal sage scrub. Hydric soil and wetland hydrology parameters not met; thus, prevalence index worksheet not required/needed.

SOIL

Sampling Point: WDP 19

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-3	10 YR 2/2	100%	N/A	N/A	N/A	N/A	Clay loam	No evidence of redox observed.
3-20	10 YR 4/6	98%	7.5 YR 4/6	2%	C	M	Loamy sand	Faint redox concentrations observed as soft masses.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes _____ No ✔

Remarks:

Faint redox concentrations observed as soft masses within soil matrix at 3 to 20 inches. No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): N/A

Water Table Present? Yes _____ No ✔ Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes _____ No ✔ Depth (inches): N/A

Wetland Hydrology Present? Yes _____ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

FAC-Neutral Test was not met. No wetland hydrology indicators observed.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Los Peñasquitos Lagoon Restoration Project City/County: San Diego/San Diego Sampling Date: 1/11/2022

Applicant/Owner: City of San Diego State: CA Sampling Point: WDP 20

Investigator(s): Ian Hirschler, Brenda Bennett Section, Township, Range: T14S, R4W, Pueblo Lands of San Diego

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Slightly concave Slope (%): 2%

Subregion (LRR): LRR C - Mediterranean California Lat: 32.924837 Long: -117.248830 Datum: WGS 84

Soil Map Unit Name: Tidal flats (soil rated as hydric per the NRCS) NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✔ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No _____	**Is the Sampled Area within a Wetland?** Yes ✔ No _____
Hydric Soil Present?	Yes ✔	No _____	
Wetland Hydrology Present?	Yes ✔	No _____	

Remarks:

Transect taken within southern willow scrub vegetation community as representative sample point. Drought conditions per APT (i.e., atypical hydrologic conditions/naturally problematic); however, three-parameter wetland persisted.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	N/A = Total Cover		
Sapling/Shrub Stratum (Plot size: 5-foot radius)			
1. Salix lasiolepis	60%	Yes	FACW
2. Toxicodendron diversilobum	10%	No	FACU
3.			
4.			
5.			
	70% = Total Cover		
Herb Stratum (Plot size: 5-foot radius)			
1. Jaumea carnosa	7%	Yes	OBL
2. Juncus acutus	5%	Yes	FACW
3. Oxalis pes-caprae	2%	No	NL/UPL
4. Ambrosia psilostachya	1%	No	FACU
5.			
6.			
7.			
8.			
	15% = Total Cover		
Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
	N/A = Total Cover		

% Bare Ground in Herb Stratum 15% % Cover of Biotic Crust 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

Sample point taken within area mapped as southern willow scrub.

SOIL

Sampling Point: WDP 20

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-3	10 YR 5/2	75%	N/A	N/A	N/A	N/A	Silty clay	Organic matter present; no evidence of redox observed.
	10 YR 2/1	25%	N/A	N/A	N/A	N/A	Silty clay	Organic matter present; no evidence of redox observed.
3-7	10 YR 5/1	98%	10 YR 5/4	2	C	M	Silty clay	Organic matter present; distinct redox concentrations observed as soft masses.
7-12	10 YR 6/1	93%	10 YR 5/6	7	C	M	Sandy loam	Prominent redox concentrations observed as soft masses.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Shovel refusal - roots

Depth (inches): @ 12 inches

Hydric Soil Present? Yes ✓ No ___

Remarks:

Soils very wet from 7 to 12 inches; allowed to dry to moist conditions before recording soil color. Distinct redox concentrations occur as soft masses with soil matrix from 3 to 7 inches; prominent redox concentrations occur as soft masses within soil matrix from 7 to 12 inches.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ✓ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

Drift deposits present as dead plant material. FAC-neutral test was met.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Los Peñasquitos Lagoon Restoration Project City/County: San Diego/San Diego Sampling Date: 1/11/2022

Applicant/Owner: City of San Diego State: CA Sampling Point: WDP 21

Investigator(s): Sarah Krejca, Shanti Santulli, Kelsey Woldt Section, Township, Range: T14S, R4W, Pueblo Lands of San Diego

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Slightly concave Slope (%): 0-1%

Subregion (LRR): LRR C - Mediterranean California Lat: 32.924858 Long: -117.248760 Datum: WGS 84

Soil Map Unit Name: Tidal flats (soil rated as hydric per the NRCS) NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ✔ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No ____

Are Vegetation ____, Soil ____, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔ No ____	**Is the Sampled Area within a Wetland?** Yes ✔ No ____
Hydric Soil Present?	Yes ✔ No ____	
Wetland Hydrology Present?	Yes ✔ No ____	

Remarks:

Transect taken within southern coastal salt marsh vegetation community as representative sample point. Drought conditions per APT (i.e., atypical hydrologic conditions/naturally problematic); however, three-parameter wetland persisted.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
	N/A = Total Cover		
Sapling/Shrub Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
	N/A = Total Cover		
Herb Stratum (Plot size: 5-foot radius)			
1. Juncus acutus	60%	Yes	FACW
2. Oxalis pes-caprae	15%	No	UPL/NL
3. Distichlis spicata	15%	No	FAC
4. Ambrosia psilostachya	3%	No	FACU
5. Jaumea carnosa	2%	No	OBL
6.			
7.			
8.			
	95% = Total Cover		
Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
	N/A = Total Cover		

% Bare Ground in Herb Stratum 5% % Cover of Biotic Crust 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No ____

Remarks:

Sample point taken within area mapped as southern coastal salt marsh. Vegetation data collected five feet from sample point except to the east to exclude area of open water at lower topography.

SOIL

Sampling Point: WDP 21

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10 YR 2/2	98%	10 YR 4/6	2%	C	M	Silty clay loam	Prominent redox concentrations observed as soft masses
4-20	10 YR 3/2	95%	7.5 YR 5/6	5%	C	M	Loamy sand	Prominent redox conservations observed as soft masses.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ✔ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✔ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ✔ No ___

Remarks:

Prominent redox concentrations occur as soft masses within soil matrix.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ✔ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ✔ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✔ Depth (inches): N/A

Water Table Present? Yes ___ No ✔ Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes ___ No ✔ Depth (inches): N/A

Wetland Hydrology Present? Yes ✔ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

Drift deposits observed as dead plant material. FAC-Neutral Test was met.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Los Peñasquitos Lagoon Restoration Project City/County: San Diego/San Diego Sampling Date: 1/11/2022

Applicant/Owner: City of San Diego State: CA Sampling Point: WDP 22

Investigator(s): Sarah Krejca, Shanti Santulli, Kelsey Woldt Section, Township, Range: T14S, R4W, Pueblo Lands of San Diego

Landform (hillslope, terrace, etc.): Slight slope Local relief (concave, convex, none): Convex Slope (%): 0-1%

Subregion (LRR): LRR C - Mediterranean California Lat: 32.924902 Long: -117.248711 Datum: WGS 84

Soil Map Unit Name: Tidal flats (soil rated as hydric per the NRCS) NWI classification: Estuarine and marine wetland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✔ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✔	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	

Remarks:

Transect taken within Diegan coastal sage scrub vegetation community as representative sample point; upland pit associated with transect (WDP 20 and WDP 21). Drought conditions per APT (i.e., atypical hydrologic conditions/naturally problematic).

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	N/A = Total Cover		
Sapling/Shrub Stratum (Plot size: 5-foot radius)			
1. Eriogonum fasciculatum	25%	Yes	NL/UPL
2. Artemesia californica	15%	Yes	NL/UPL
3. Baccharis sarothroides	5%	No	FACU
4.			
5.			
	45% = Total Cover		
Herb Stratum (Plot size: 5-foot radius)			
1. Oxalis pes-caprae	55%	Yes	NL/UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	55% = Total Cover		
Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
	N/A = Total Cover		

% Bare Ground in Herb Stratum 10% % Cover of Biotic Crust 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✔

Remarks:

Sample point taken within area mapped as Diegan coastal sage scrub. Hydric soil and wetland hydrology parameters not met; thus, prevalence index worksheet not required/needed.

SOIL

Sampling Point: WDP 22

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10 YR 3/2	100%	N/A	N/A	N/A	N/A	Silty clay loam	No evidence of redox observed.
4-20	10 YR 3/4	100%	N/A	N/A	N/A	N/A	Loamy sand	No evidence of redox observed.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes _____ No ✔

Remarks:

No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): N/A

Water Table Present? Yes _____ No ✔ Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes _____ No ✔ Depth (inches): N/A

Wetland Hydrology Present? Yes _____ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

No wetland hydrology indicators observed. FAC-Neutral Test was not met.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Los Peñasquitos Lagoon Restoration Project City/County: San Diego/San Diego Sampling Date: 1/20/2022

Applicant/Owner: City of San Diego State: CA Sampling Point: WDP 23

Investigator(s): Sarah Krejca, Kelsey Woldt Section, Township, Range: T15S, R3W, Pueblo Lands of San Diego

Landform (hillslope, terrace, etc.): Within drainage Local relief (concave, convex, none): Slightly concave Slope (%): 0-1%

Subregion (LRR): LRR C - Mediterranean California Lat: 32.903197 Long: -117.228014 Datum: WGS 84

Soil Map Unit Name: Chino silt loam, saline, 0 to 2 percent slopes (soil rated as hydric per the NRCS) NWI classification: Riverine

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✔ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No _____	**Is the Sampled Area within a Wetland?** Yes ✔ No _____
Hydric Soil Present?	Yes ✔	No _____	
Wetland Hydrology Present?	Yes ✔	No _____	

Remarks:

Sample point taken within disturbed wetland vegetation community. Drought conditions per APT (i.e., atypical hydrologic conditions/naturally problematic). Roadside drainage is routinely maintained (i.e., cleared of vegetation) by the City of San Diego. More Sinapis arvensis (NL/UPL) located upstream; however, same soils and hydrologic conditions persisted throughout drainage.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	N/A	= Total Cover	
Sapling/Shrub Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
	N/A	= Total Cover	
Herb Stratum (Plot size: 5-foot radius)			
1. Rumex crispus	36%	Yes	FAC
2. Medicago polymorpha	2%	No	FACU
3. Sinapis arvensis	1%	No	NL/UPL
4. Sonchus asper	1%	No	FAC
5.			
6.			
7.			
8.			
	40%	= Total Cover	
Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
	N/A	= Total Cover	

% Bare Ground in Herb Stratum 60% % Cover of Biotic Crust 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

Sample point taken within area mapped as disturbed wetland.

SOIL

Sampling Point: WDP 23

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-20	10 YR 3/2	90%	7.5 YR 4/6	10%	C	M, PL	Silty clay	Prominent redox concentrations observed as soft masses and pore linings.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✔ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ✔ No ___

Remarks:

Prominent redox concentrations occur as soft masses and along pore linings within soil matrix.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ✔ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ✔ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✔ Depth (inches): N/A

Water Table Present? Yes ___ No ✔ Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes ___ No ✔ Depth (inches): N/A

Wetland Hydrology Present? Yes ✔ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

Sediment deposits observed on leaves. FAC-Neutral Test was not met. Although only one secondary wetland hydrology indicator was met, drought conditions exist per APT even though within the middle of the rainy season (i.e., atypical hydrologic conditions/naturally problematic); therefore, per the Arid West Supplement, wetland hydrology is presumed.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Los Peñasquitos Lagoon Restoration Project City/County: San Diego/San Diego Sampling Date: 1/20/2022

Applicant/Owner: City of San Diego State: CA Sampling Point: WDP 24

Investigator(s): Sarah Krejca, Kelsey Woldt Section, Township, Range: T15S, R3W, Pueblo Lands of San Diego

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 2-4 %

Subregion (LRR): LRR C - Mediterranean California Lat: 32.903219 Long: -117.228051 Datum: WGS 84

Soil Map Unit Name: Chino silt loam, saline, 0 to 2 percent slopes (soil rated as hydric per the NRCS) NWI classification: Riverine

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✔ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✔	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	

Remarks:

Sample point taken within disturbed habitat vegetation community as representative data point; upland pit associated with WDP 23. Drought conditions per APT (i.e., atypical hydrologic conditions/naturally problematic).

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	N/A = Total Cover		
Sapling/Shrub Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
	N/A = Total Cover		
Herb Stratum (Plot size: 5 foot radius)			
1. Erodium moschatum	80%	Yes	NL/UPL
2. Sonchus asper	1%	No	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	81% = Total Cover		
Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
	N/A = Total Cover		

% Bare Ground in Herb Stratum 19% % Cover of Biotic Crust 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✔

Remarks:

Sample point taken within area mapped as disturbed habitat. Hydric soil and wetland hydrology parameters not met; thus, prevalence index worksheet not required/needed.

SOIL

Sampling Point: WDP 24

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-20	10 YR 4/4	100%	N/A	N/A	N/A	N/A	Clay loam	No evidence of redox observed.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes _____ No ✔

Remarks:

Dry soils; soils moistened with spray bottle to record soil color. Uniform soils throughout. No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): N/A

Water Table Present? Yes _____ No ✔ Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes _____ No ✔ Depth (inches): N/A

Wetland Hydrology Present? Yes _____ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

FAC-Neutral Test was not met. No wetland hydrology indicators observed.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Los Peñasquitos Lagoon Restoration Project City/County: San Diego/San Diego Sampling Date: 1/12/2022

Applicant/Owner: City of San Diego State: CA Sampling Point: WDP 25

Investigator(s): Sarah Krejca, Brenda Bennett, Kelsey Woldt Section, Township, Range: T14S, R4W, Pueblo Lands of San Diego

Landform (hillslope, terrace, etc.): terrace/floodplain Local relief (concave, convex, none): Concave Slope (%): 0-2%

Subregion (LRR): LRR C - Mediterranean California Lat: 32.912253 Long: -117.239160 Datum: WGS 84

Soil Map Unit Name: Corralitos loamy sand, 5 to 9 percent slopes NWI classification: Freshwater forested/shrub wetland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✔ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✔	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes ✔	No _____	
Wetland Hydrology Present?	Yes _____	No ✔	

Remarks:

Sample point taken as representative data point for southern willow scrub vegetation community along western extent of footpath. Drought conditions per APT (i.e., atypical hydrologic conditions/naturally problematic).

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 15-foot radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix lasiolepis	55%	Yes	FACW
2.			
3.			
4.			
	55% = Total Cover		
Sapling/Shrub Stratum (Plot size: 5-foot radius)			
1. Baccharis sarothroides	10%	Yes	FACU
2. Salvia mellifora	10%	Yes	NL/UPL
3. Artemisia californica	5%	No	NL/UPL
4. Ribes speciosum	5%	No	NL/UPL
5.			
	30% = Total Cover		
Herb Stratum (Plot size: 5-foot radius)			
1. Daucus pusillus	3%	Yes	NL/UPL
2. Bromus diandrus	3%	Yes	NL/UPL
3. Foeniculum vulgare	2%	Yes	NL/UPL
4.			
5.			
6.			
7.			
8.			
	8% = Total Cover		
Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
	N/A = Total Cover		

% Bare Ground in Herb Stratum 35% % Cover of Biotic Crust 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 17% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	55	x 2 =	110
FAC species	0	x 3 =	0
FACU species	10	x 4 =	40
UPL species	28	x 5 =	140
Column Totals:	93 (A)		290 (B)

Prevalence Index = B/A = 3.12

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✔

Remarks:

Sample point taken within area mapped as southern willow scrub. Fifteen-foot radius for tree stratum used to only account for vegetation within area growing under same soil and hydrologic conditions (i.e., within/directly adjacent to the drainage).

SOIL

Sampling Point: WDP 25

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-13	10 YR 3/2	70%	10 YR 6/8	10%	C	M	silty clay loam	Prominent redox concentrations observed as soft masses.
	10 YR 2/1	15%	10 YR 5/1	5%	D	M	silty clay loam	Redox depletions observed.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: shovel refusal = likely tree roots and rocks

Depth (inches): @13 inches

Hydric Soil Present? Yes ✓ No ___

Remarks:

Removed layer of loose leaves from top of soil sample. Prominent redox concentrations observed as soft masses and redox depletions observed within soil matrix.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ✓ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): N/A

Water Table Present? Yes ___ No ✓ Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): N/A

Wetland Hydrology Present? Yes ___ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

Drift deposits present as dead plant material; did not meet FAC-Neutral Test.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Los Peñasquitos Lagoon Restoration Project City/County: San Diego/San Diego Sampling Date: 1/12/2022

Applicant/Owner: City of San Diego State: CA Sampling Point: WDP 26

Investigator(s): Sarah Krejca, Brenda Bennett, Kelsey Woldt Section, Township, Range: T14S, R4W, Pueblo Lands of San Diego

Landform (hillslope, terrace, etc.): Within drainage Local relief (concave, convex, none): Slightly concave Slope (%): 0-1%

Subregion (LRR): LRR C - Mediterranean California Lat: 32.912398 Long: -117.239292 Datum: WGS 84

Soil Map Unit Name: Corralitos loamy sand, 5 to 9 percent slopes NWI classification: Freshwater forested/shrub wetland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✔ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✔	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	

Remarks:

Sample point taken as representative data point for small, unvegetated drainage along western extent of footpath. Drought conditions per APT (i.e., atypical hydrologic conditions/naturally problematic)

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	N/A	= Total Cover	
Sapling/Shrub Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
	N/A	= Total Cover	
Herb Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	N/A	= Total Cover	
Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
	N/A	= Total Cover	

% Bare Ground in Herb Stratum 100% % Cover of Biotic Crust 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✔

Remarks:

Sample point taken within unvegetated/sparsely vegetated drainage within larger area mapped as Diegan coastal sage scrub. No vegetation equal to or over 5% in any stratum.

SOIL

Sampling Point: WDP 26

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-15	10 YR 4/4	98%	10 YR 6/8	2%	C	M	Sandy clay	Prominent redox concentrations observed as soft masses.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: shovel refusal - likely rocks/bedrock

Depth (inches): @15 inches

Hydric Soil Present? Yes ____ No ✔

Remarks:

Dry soils; soils moistened with spray bottle to record soil color. Prominent redox concentrations observed as soft masses within soil matrix; however, no hydric soil indicator(s) met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ✔ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No ✔ Depth (inches): N/A

Water Table Present? Yes ____ No ✔ Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes ____ No ✔ Depth (inches): N/A

Wetland Hydrology Present? Yes ____ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

Drift deposits present as dead plant material; did not meet FAC-Neutral Test.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Los Peñasquitos Lagoon Restoration Project City/County: San Diego/San Diego Sampling Date: 1/12/2022

Applicant/Owner: City of San Diego State: CA Sampling Point: WDP 27

Investigator(s): Brenda Bennett, Kelsey Woldt Section, Township, Range: T14S, R4W, Pueblo Lands of San Diego

Landform (hillslope, terrace, etc.): Slight slope Local relief (concave, convex, none): None Slope (%): 0-1%

Subregion (LRR): LRR C - Mediterranean California Lat: 32.912506 Long: -117.239349 Datum: WGS 84

Soil Map Unit Name: Corralitos loamy sand, 5 to 9 percent slopes NWI classification: Freshwater forested/shrub wetland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✔	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	

Remarks:

Sample point taken within Diegan coastal sage scrub vegetation community as representative sample point of transitional area between southern willow scrub and adjacent upland vegetation communities west of the trail. Drought conditions per APT (i.e., atypical hydrologic conditions/naturally problematic).

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	N/A = Total Cover		
Sapling/Shrub Stratum (Plot size: 5-foot radius)			
1. Rhus integrifolia	85%	Yes	NL/UPL
2.			
3.			
4.			
5.			
	85% = Total Cover		
Herb Stratum (Plot size: 5-foot radius)			
1. Bromus diandrus	10%	Yes	NL/UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	10% = Total Cover		
Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
	N/A = Total Cover		

% Bare Ground in Herb Stratum 10% % Cover of Biotic Crust 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✔

Remarks:

Sample point taken within area mapped as Diegan coastal sage scrub. Access difficult; pit dug between trail and dense wall of Rhus integrifolia. Vegetation data collected five feet from sample point except to the east to exclude unvegetated trail. Hydric soil and wetland hydrology parameters not met; thus, prevalence index worksheet not required/needed.

SOIL

Sampling Point: WDP 27

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2	10 YR 2/1	98%	10 YR 5/8	2%	C	M	Clay loam	Prominent redox concentrations observed as soft masses.
2-8	10 YR 4/3	88%	10 YR 5/8	2%	C	M	Clay loam	Prominent redox concentrations observed as soft masses.
	10 YR 5/1	10%					Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Shovel refusal - likely rocks or fill

Depth (inches): @ 8 inches

Hydric Soil Present? Yes _____ No ✔

Remarks:

Second soil layer had a mixed matrix with a consistent percentage of redox features (2%) throughout both matrix colors. Prominent redox concentrations observed as soft masses within soil matrix; however, no hydric soil indicator(s) met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): N/A

Water Table Present? Yes _____ No ✔ Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes _____ No ✔ Depth (inches): N/A

Wetland Hydrology Present? Yes _____ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

FAC-Neutral Test was not met. No hydrology indicators observed.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Los Peñasquitos Lagoon Restoration Project City/County: San Diego/San Diego Sampling Date: 1/11/2022

Applicant/Owner: City of San Diego State: CA Sampling Point: WDP 28

Investigator(s): Sarah Krejca Section, Township, Range: T14S, R4W, Pueblo Lands of San Diego

Landform (hillslope, terrace, etc.): Within drainage along hillslope Local relief (concave, convex, none): None Slope (%): 0-2%

Subregion (LRR): LRR C - Mediterranean California Lat: 32.917537 Long: -117.238018 Datum: WGS 84

Soil Map Unit Name: Huerhuero loam, 15 to 30 percent slopes, eroded NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✔ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✔	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	

Remarks:

Sample point taken within mule fat scrub vegetation community along small drainage on slope. Drought conditions per APT (i.e., atypical hydrologic conditions/naturally problematic).

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	N/A = Total Cover		
Sapling/Shrub Stratum (Plot size: 5-foot radius)			
1. Baccharis salicifolia	30%	Yes	FAC
2. Baccharis sarothroides	10%	No	FACU
3.			
4.			
5.			
	40% = Total Cover		
Herb Stratum (Plot size: 5-foot radius)			
1. Carpobratus edulis	90%	Yes	NL/UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	90% = Total Cover		
Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
	N/A = Total Cover		

% Bare Ground in Herb Stratum 0% % Cover of Biotic Crust 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✔

Remarks:

Sample point taken within area mapped as mule fat scrub. Hydric soil and wetland hydrology parameters not met; thus, prevalence index worksheet not required/needed.

SOIL

Sampling Point: WDP 28

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-14	10 YR 4/3	100%	N/A	N/A	N/A	N/A	Sandy loam	No evidence of redox observed.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Shovel refusal - likely rocks

Depth (inches): @ 14 inches

Hydric Soil Present? Yes _____ No ✔

Remarks:

Dry soils; soils moistened with spray bottle to record soil color. Uniform soils throughout. No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): N/A

Water Table Present? Yes _____ No ✔ Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes _____ No ✔ Depth (inches): N/A

Wetland Hydrology Present? Yes _____ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

FAC-Neutral Test was not met. No wetland hydrology indicators observed.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Los Peñasquitos Lagoon Restoration Project City/County: San Diego/San Diego Sampling Date: 1/20/2022

Applicant/Owner: City of San Diego State: CA Sampling Point: WDP 29

Investigator(s): Sarah Krejca Section, Township, Range: T14S, R4W, Pueblo Lands of San Diego

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): None Slope (%): 0-1%

Subregion (LRR): LRR C - Mediterranean California Lat: 32.921191 Long: -117.245145 Datum: WGS 84

Soil Map Unit Name: Chino silt loam, saline, 0 to 2 percent slopes (soil rated as hydric per the NRCS) NWI classification: Freshwater emergent wetland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✔ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	

Remarks:

Sample point taken within non-native grassland vegetation community as representative sample point. Drought conditions per APT (i.e., atypical hydrologic conditions/naturally problematic).

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	N/A	= Total Cover	
Sapling/Shrub Stratum (Plot size: N/A)			
1.			FACU
2.			
3.			
4.			
5.			
	N/A	= Total Cover	
Herb Stratum (Plot size: 5-foot radius)			
1. Festuca perennis	65%	Yes	FAC
2. Frankenia salina	30%	Yes	FACW
3. Salicornia pacifica	5%	No	OBL
4.			
5.			
6.			
7.			
8.			
	100%	= Total Cover	
Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
	N/A	= Total Cover	

% Bare Ground in Herb Stratum 0% % Cover of Biotic Crust 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

Sample point taken within area mapped as non-native grassland.

SOIL

Sampling Point: WDP 29

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-20	10 YR 3/3	100%	N/A	N/A	N/A	N/A	Silty clay	No evidence of redox observed.
	10YR4/6						loamy sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes _____ No ✓

Remarks:

No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): N/A

Water Table Present? Yes _____ No ✓ Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): N/A

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

FAC-Neutral Test was met. No other wetland hydrology indicators observed.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Los Peñasquitos Lagoon Restoration Project
Project Number: N/A
Stream: ODP 1
Investigator(s): Sarah Krejca

Date: 1/12/2022
Town: San Diego
Photo begin file#: 4

Time: 1245
State: CA
Photo end file#: 4

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☑ Is the site significantly disturbed?

Location Details:
Los Peñasquitos Lagoon Restoration Project - Phase I Aquatic Resource Delineation Report Review Area

Projection: WGS 84 **Datum:** NAD 83
Coordinates: 32.897699, -117.220717

Potential anthropogenic influences on the channel system:
Channel is in an urban setting, adjacent to railroad tracks and commercial development. Receives runoff from surrounding urban development, including single culvert at sample point location.

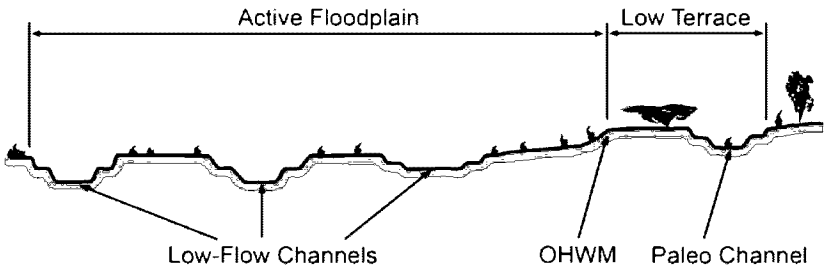
Brief site description:
Concrete-lined channel adjacent to commercial development (southwest) and railroad tracks (northeast).

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☑ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
  - ☐ History of recent effective discharges
  - ☐ Results of flood frequency analysis
  - ☐ Most recent shift-adjusted rating
  - ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

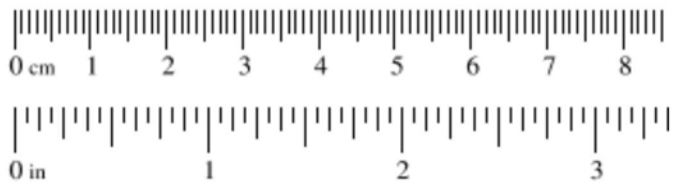


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

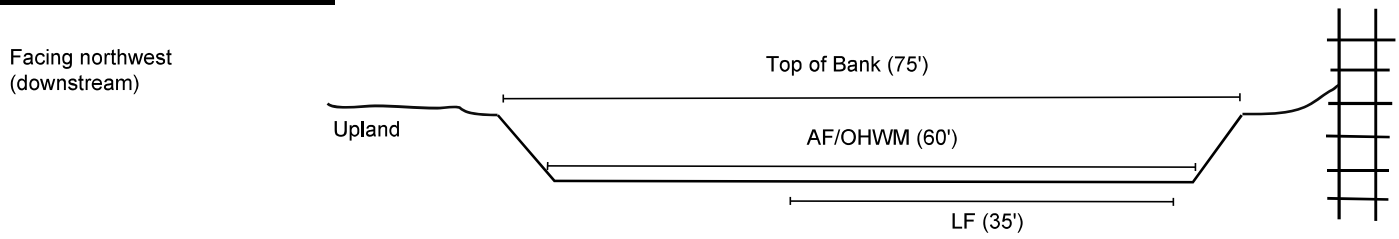
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Los Peñasquitos Lagoon Restoration Project **Cross section ID:** ODP 1 **Date:** 1/12/2022 **Time:** 1245

Cross section drawing:



OHWM

GPS point: 32.897699, -117.220717

Indicators:

- ☐ Change in average sediment texture
- ☐ Change in vegetation species
- ☐ Change in vegetation cover
- ☐ Break in bank slope
- ☑ Other: Water staining on concrete
- ☑ Other: Lack of pine needles on concrete

Comments:
Approximately 60-foot wide OHWM; concrete-lined trapezoidal channel. The OHWM was defined by water staining on the concrete banks and a lack of pine needles on the concrete banks; no other clear OHWM indicators.

Floodplain unit:

☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: 32.897746, -117.220629

Characteristics of the floodplain unit:

Average sediment texture: N/A - concrete-lined

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☑ Ripples
- ☑ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☑ Other: Surface flows present
- ☑ Other: Algae
- ☐ Other:

Comments:
Approximately 35-foot wide low-flow (LF) channel present within the concrete-lined channel. LF channel assumed within areas of active flow during site visit given the low rain/drought year; ripples and algae also present. Drift and/or debris observed as pine cones from trees located upstream and within adjacent uplands. Field staff was unable to access this portion of the channel due to the steep slopes; however, conditions were visually estimated from the adjacent uplands.

Project ID: Los Peñasquitos Lagoon Restoration Project **Cross section ID:** ODP 1 **Date:** 1/12/2022 **Time:** 1245

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: N/A - concrete-lined

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☑ Other: Water staining on concrete
- ☑ Other: Lack of pine needles on concrete
- ☐ Other: _____

Comments:

Approximately 60-foot wide active floodplain (AF). Slight discoloration/water staining visible approximately 18 inches from channel bottom. Pine needles present along concrete starting approximately 18 inches form channel bottom.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: Medium silt

Total veg cover: 30 % Tree: 10 % Shrub: 10 % Herb: 10 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☑ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☑ Other: Lack of water staining on concrete
- ☑ Other: Presence of pine needles on concrete
- ☐ Other: _____

Comments:

Upland slopes also composed of concrete-lined channel (above the AF), which then continues upward to earthen, upland areas dominated by non-native/ornamental vegetation. Southwestern upland area dominated by Pinus sp., Erodium cicutarium, and Sambucus nigra. Northeastern upland area dominated by Ricinus communis, Cortaderia selloana, Pennisetum setaceum, and other non-native grasses. Medium silt sediment texture throughout earthen, upland slopes.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Los Peñasquitos Lagoon Restoration Project
Project Number: N/A
Stream: ODP 2
Investigator(s): Sarah Krejca

Date: 1/12/2022
Town: San Diego
Photo begin file#: 5

Time: 1210
State: CA
Photo end file#: 5

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☑ Is the site significantly disturbed?

Location Details:
Los Peñasquitos Lagoon Restoration Project - Phase I Aquatic Resource Delineation Report Review Area

Projection: WGS 84 **Datum:** NAD 83
Coordinates: 32.904403, -117.227346

Potential anthropogenic influences on the channel system:
Channel is in an urban setting, adjacent to railroad tracks and commercial development. Received runoff from surrounding urban development.

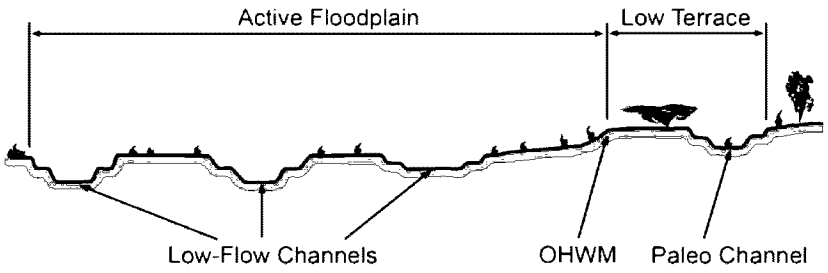
Brief site description:
Channelized area adjacent to commercial development (southwest) and railroad tracks (northeast).

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☑ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

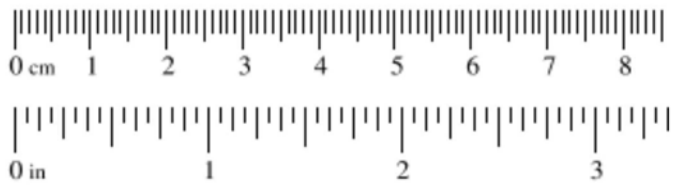


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

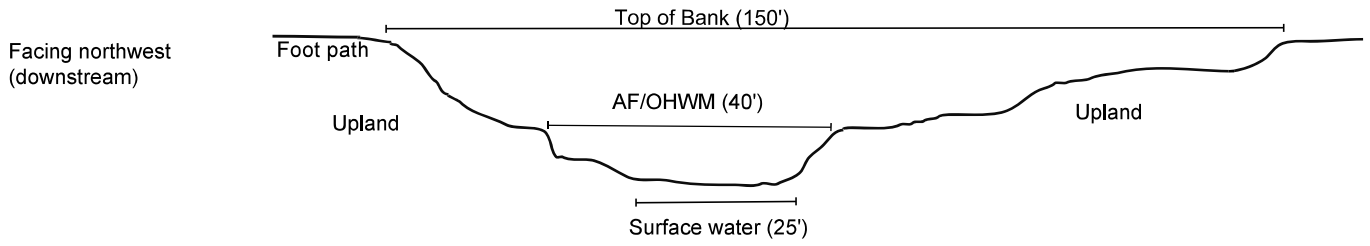
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Los Peñasquitos Lagoon Restoration Project **Cross section ID:** ODP 2 **Date:** 1/12/2022 **Time:** 1210

Cross section drawing:



OHWM

GPS point: 32.904403, -117.227346

Indicators:

- ☑ Change in average sediment texture
- ☑ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:
Approximately 40-foot wide OHWM defined by a break in bank slope, change in average sediment texture, and change in vegetation species and cover. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit:

☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: Just below OHWM

Characteristics of the floodplain unit:

Average sediment texture: Unknown (under water)

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☑ Other: Surface water
- ☐ Other: _____
- ☐ Other: _____

Comments:
Low-flow channel (LF) assumed within area of standing water during site visit given low rain/drought year within this intermittent/perennial section of Soledad Canyon Creek. No vegetation occurring within the LF (water approximately 4 feet deep). Difficult to assess sediment texture within open waters/LF areas.

Project ID: Los Peñasquitos Lagoon Restoration Project **Cross section ID:** ODP 2 **Date:** 1/12/2022 **Time:** 1210

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: Medium sand

Total veg cover: 15 % Tree: 0 % Shrub: 0 % Herb: 15 %

Community successional stage:

- ☐ NA
- ☐ Mid (herbaceous, shrubs, saplings)
- ☑ Early (herbaceous & seedlings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 40-foot wide active floodplain (AF). Drift/debris present as dead vegetation and branches, including wrack at base of Arundo donax. Sharp break in bank slope along northeast bank. Vegetation dominated by Arundo donax, Nasturtium officinale, Schoenoplectus californicus, and Ricinus communis. Medium sand sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: Medium silt

Total veg cover: 70 % Tree: 10 % Shrub: 10 % Herb: 50 %

Community successional stage:

- ☐ NA
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Early (herbaceous & seedlings)
- ☑ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Vegetation dominated by Oxalis pes-caprae, Salix lasiolepis, Hirschfeldia incana, Cortaderia selloana, Baccharis salicifolia, and other unknown grasses. Medium silt sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Los Peñasquitos Lagoon Restoration Project
Project Number: N/A
Stream: ODP 3
Investigator(s): Sarah Krejca

Date: 1/12/2022 **Time:** 1040
Town: San Diego **State:** CA
Photo begin file#: 10 **Photo end file#:** 10

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☑ Is the site significantly disturbed?

Location Details:
Los Peñasquitos Lagoon Restoration Project - Phase I Aquatic Resource Delineation Report Review Area

Projection: WGS 84 **Datum:** NAD 83
Coordinates: 32.908752, -117.233316

Potential anthropogenic influences on the channel system:
Upstream runoff from urban development; adjacent to railroad tracks and hiking trail.

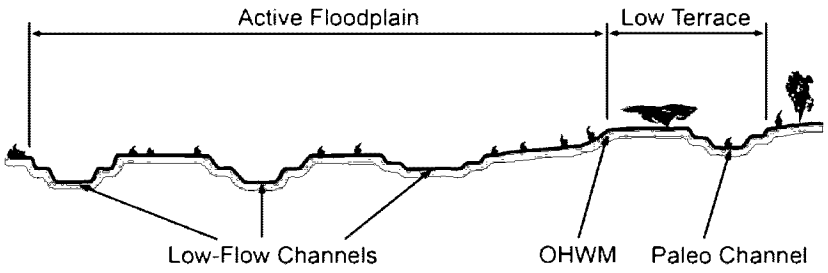
Brief site description:
Lagoon adjacent to railroad tracks (northeast) and open space, including a foot path/dirt road to the southwest.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☑ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
  - ☐ History of recent effective discharges
  - ☐ Results of flood frequency analysis
  - ☐ Most recent shift-adjusted rating
  - ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

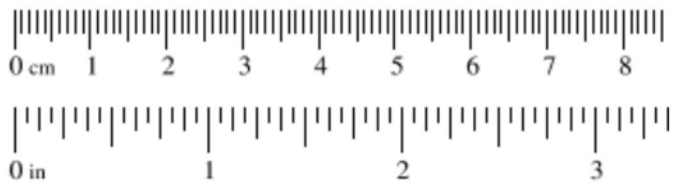


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

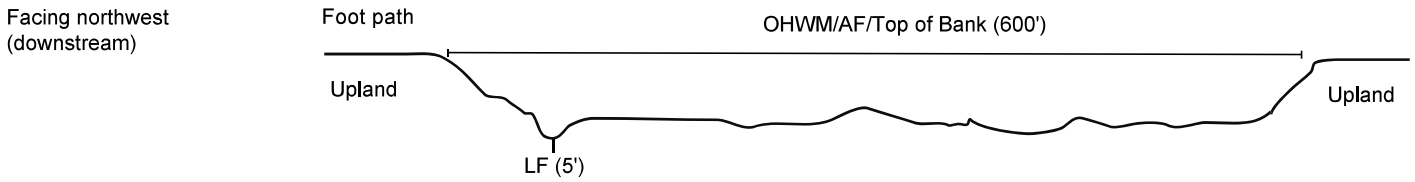
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Los Peñasquitos Lagoon Restoration Project **Cross section ID:** ODP 3 **Date:** 1/12/2022 **Time:** 1040

Cross section drawing:



OHWM

GPS point: 32.908752, -117.233316

Indicators:

- ☑ Change in average sediment texture
- ☑ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:
Approximately 600-foot wide OHWM defined by a break in bank slope, change in average sediment texture, and change in vegetation species and cover. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit:

☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: 32.908755, -117.233209

Characteristics of the floodplain unit:

Average sediment texture: Unknown (under water)

Total veg cover: 80 % Tree: 0 % Shrub: 30 % Herb: 50 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☑ Other: Surface water
- ☐ Other: _____
- ☐ Other: _____

Comments:
Approximately 5-foot wide low-flow channel (LF). Drift/debris present as dead vegetation. Difficult to assess sediment texture within open waters/LF areas. Vegetation dominated by Helminthotheca echioides and Iva hayesiana. Could not access AF due to thick vegetation and State Parks guidance to not trample vegetation; therefore, there were potentially more LFs within the AF.

Project ID: Los Peñasquitos Lagoon Restoration Project **Cross section ID:** ODP 3 **Date:** 1/12/2022 **Time:** 1040

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: Medium silt

Total veg cover: 100 % Tree: 30 % Shrub: 50 % Herb: 20 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☑ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 600-foot wide active floodplain (AF). Drift/debris present as dead vegetation and branches. Sharp break in bank slope along southwest bank. Vegetation dominated by Arundo donax, Ricinus communis, Cortaderia selloana, Baccharis salicifolia, Helminthotheca echioides, and Frankenia salina. Medium silt sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: 32.908744, -117.233356

Characteristics of the floodplain unit:

Average sediment texture: Medium sand

Total veg cover: 80 % Tree: 0 % Shrub: 0 % Herb: 80 %

Community successional stage:

- ☐ NA
- ☑ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Vegetation dominated by Raphanus sativus, Oxalis pes-caprae, Foeniculum vulgare, Helminthotheca echioides, and Erodium cicutarium. Medium sand sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Los Peñasquitos Lagoon Restoration Project
Project Number: N/A
Stream: ODP 4
Investigator(s): Sarah Krejca

Date: 1/12/2022 **Time:** 0910
Town: San Diego **State:** CA
Photo begin file#: 14 **Photo end file#:** 14

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☑ Is the site significantly disturbed?

Location Details:
Los Peñasquitos Lagoon Restoration Project - Phase I Aquatic Resource Delineation Report Review Area

Projection: WGS 84 **Datum:** NAD 83
Coordinates: 32.915068, -117.240533

Potential anthropogenic influences on the channel system:
Upstream runoff from urban development; adjacent to railroad tracks and hiking trail.

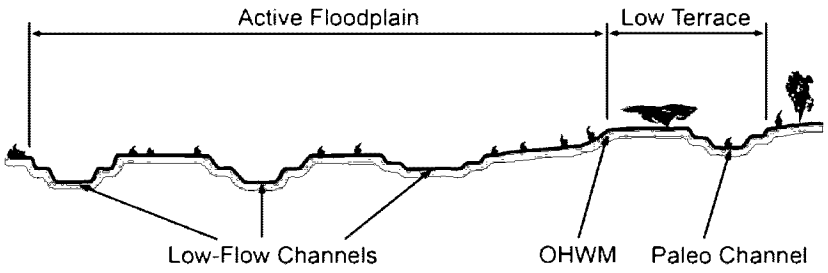
Brief site description:
Lagoon adjacent to railroad tracks (northeast) and open space, including a foot path/dirt road to the southwest.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☑ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
  - ☐ History of recent effective discharges
  - ☐ Results of flood frequency analysis
  - ☐ Most recent shift-adjusted rating
  - ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

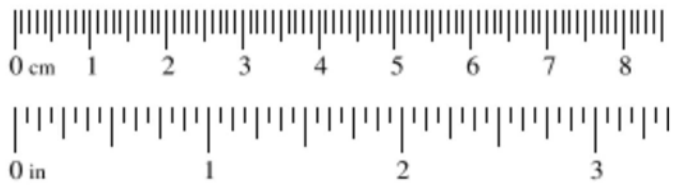


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

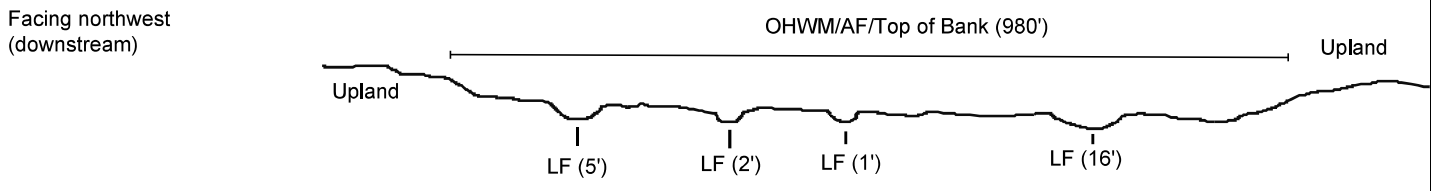
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Los Peñasquitos Lagoon Restoration Project **Cross section ID:** ODP 4 **Date:** 1/12/2022 **Time:** 0910

Cross section drawing:



OHWM

GPS point: 32.915068, -117.240533

Indicators:

- ☑ Change in average sediment texture
- ☑ Change in vegetation species
- ☐ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:
Approximately 980-foot wide OHWM defined by a break in bank slope, change in average sediment texture, and change in vegetation species. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit:

☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: 32.914964, -117.240028

Characteristics of the floodplain unit:

Average sediment texture: unknown (under water)

Total veg cover: 60 % Tree: 0 % Shrub: 0 % Herb: 60 %

Community successional stage:

- ☐ NA
- ☑ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☑ Other: Surface water
- ☐ Other: _____
- ☐ Other: _____

Comments:
Multiple low-flow channels (LFs) measuring approximately 16 feet wide, 5 feet wide, 2 feet wide, and 1 foot wide. Difficult to assess sediment texture within open waters/LF areas. Vegetation dominated by Salicornia pacifica and Frankenia salina. Could not access portions of the AF due to thick vegetation and State Parks guidance to not trample vegetation; thus, the 16-foot wide LF was assessed via aerials and there were potentially more LFs within the AF.

Project ID: Los Peñasquitos Lagoon Restoration Project **Cross section ID:** ODP 4 **Date:** 1/12/2022 **Time:** 0910

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: Medium silt

Total veg cover: 100 % Tree: 0 % Shrub: 40 % Herb: 60 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☑ Other: Drainage patterns
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 980-foot wide active floodplain (AF). Drift/debris present as dead vegetation; drainage patterns evident as vegetation pushed over in direction of flow. Vegetation dominated by Elymus condensatus, Baccharis salicifolia, Salicornia pacifica, Frankenia salina, Anemopsis californica, Xanthium strumarium, and unknown grasses. Medium silt sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: 32.915042, -117.240613

Characteristics of the floodplain unit:

Average sediment texture: Medium sand

Total veg cover: 95 % Tree: 0 % Shrub: 35 % Herb: 60 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Vegetation dominated by Baccharis pilularis, Artemisia californica, Bromus rubens, Juncus mexicanus, and Distichlis spicata. Medium sand sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Los Peñasquitos Lagoon Restoration Project
Project Number: N/A
Stream: ODP 5
Investigator(s): Sarah Krejca

Date: 1/20/2022
Town: San Diego
Photo begin file#: 32

Time: 1350
State: CA
Photo end file#: 32

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Los Peñasquitos Lagoon Restoration Project - Phase I Aquatic Resource Delineation Report Review Area

Projection: WGS 84 **Datum:** NAD 83
Coordinates: 32.903240, -117.227865

Potential anthropogenic influences on the channel system:
Upstream culvert carrying urban runoff; surrounded by development (commercial and Dunhill Road); City regularly clear vegetation from drainage.

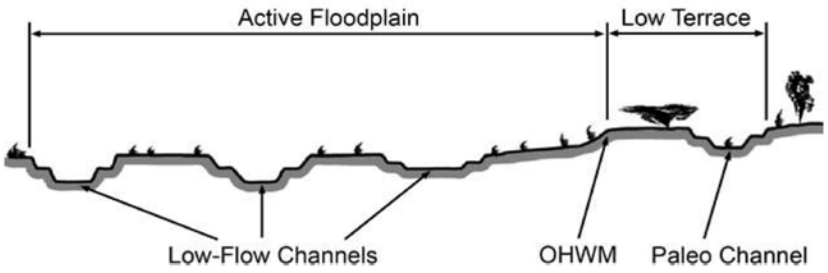
Brief site description:
Drainage adjacent to roadside (along Dunhill Road) in urban environment.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☑ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
  - ☐ History of recent effective discharges
  - ☐ Results of flood frequency analysis
  - ☐ Most recent shift-adjusted rating
  - ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

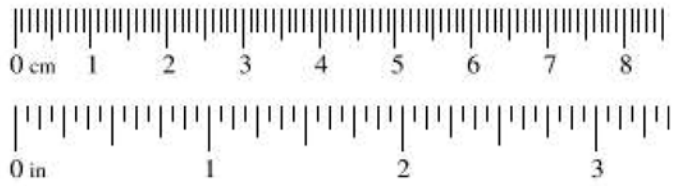


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

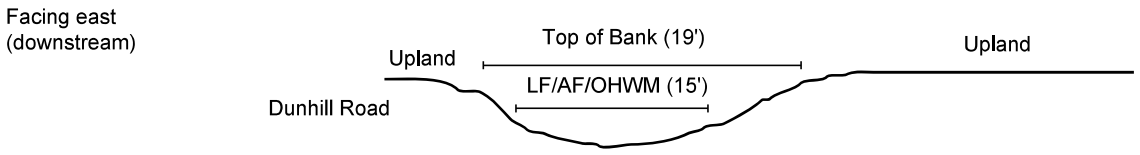
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Los Peñasquitos Lagoon Restoration Project **Cross section ID:** ODP 5 **Date:** 1/20/2022 **Time:** 1350

Cross section drawing:



OHWM

GPS point: 32.903240, -117.227865

Indicators:

- ☐ Change in average sediment texture
- ☑ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 15-foot wide OHWM defined by a break in bank slope and change in vegetation species and cover. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography. No distinguishable difference in sediment texture from active floodplain (AF) to upland.

Floodplain unit:

☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF).

Project ID: Los Peñasquitos Lagoon Restoration Project **Cross section ID:** ODP 5 **Date:** 1/20/2022 **Time:** 1350

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: Very fine silt

Total veg cover: 25 % Tree: 0 % Shrub: 0 % Herb: 25 %

Community successional stage:

- ☐ NA
- ☑ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 15-foot wide AF. Very fine silt sediment texture throughout. Vegetation dominated by Rumex crispus and Sonchus asper.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: Very fine silt

Total veg cover: 40 % Tree: 0 % Shrub: 20 % Herb: 20 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Vegetation dominated by Erodium sp., ornamental hedge, and unknown grasses (likely Ehrharta erecta). Very fine silt sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Los Peñasquitos Lagoon Restoration Project
Project Number: N/A
Stream: ODP 6
Investigator(s): Sarah Krejca

Date: 1/12/2022
Town: San Diego
Photo begin file#: 33

Time: 0810
State: CA
Photo end file#: 33

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☑ Is the site significantly disturbed?

Location Details:
Los Peñasquitos Lagoon Restoration Project - Phase I Aquatic Resource Delineation Report Review Area

Projection: WGS 84 **Datum:** NAD 83
Coordinates: 32.911854, -117.238956

Potential anthropogenic influences on the channel system:
Upstream runoff from urban development.

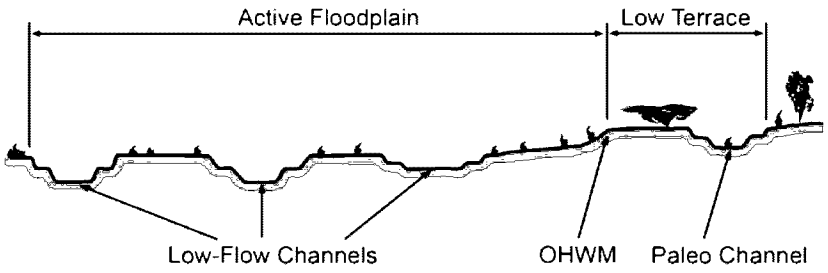
Brief site description:
Within open space preserve, adjacent to ranger house, unpaved driveway, and dirt foot path.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☑ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
  - ☐ History of recent effective discharges
  - ☐ Results of flood frequency analysis
  - ☐ Most recent shift-adjusted rating
  - ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units



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2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
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   a) Record the floodplain unit and GPS position.
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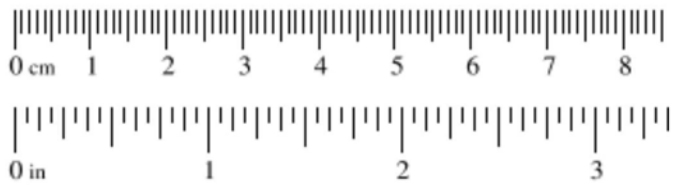
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

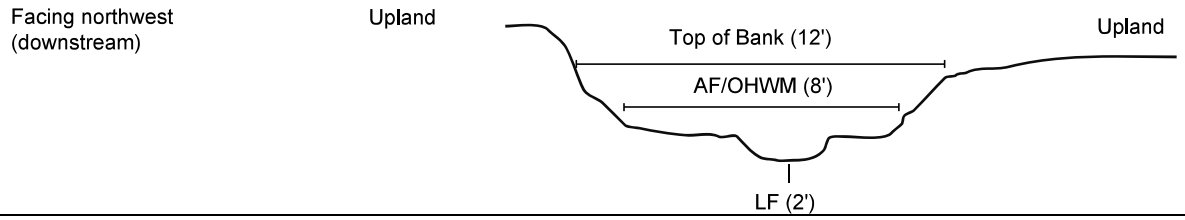
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Los Peñasquitos Lagoon Restoration Project **Cross section ID:** ODP 6 **Date:** 1/12/2022 **Time:** 0810

Cross section drawing:



OHWM

GPS point: 32.911854, -117.238956

Indicators:

- ☑ Change in average sediment texture
- ☑ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:
Approximately 8-foot wide OHWM defined by a sharp break in bank slope, change in average sediment texture, and change in vegetation species and cover. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit:

☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: Just below OHWM

Characteristics of the floodplain unit:

Average sediment texture: Pebble

Total veg cover: 2 % Tree: 0 % Shrub: 0 % Herb: 2 %

Community successional stage:

- ☐ NA
- ☑ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:
Approximately 3-foot wide low-flow channel (LF). Drift/debris present as leaves from tree not within vicinity. Vegetation dominated by Foeniculum vulgare sprouts and unknown grass. Pebble sediment texture with some coarse sand.

Project ID: Los Peñasquitos Lagoon Restoration Project **Cross section ID:** ODP 6 **Date:** 1/12/2022 **Time:** 0810

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: Coarse sand

Total veg cover: 30 % Tree: 5 % Shrub: 40 % Herb: 25 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 8-foot wide active floodplain (AF). Sharp break in bank slope. Vegetation dominated by Helminthotheca echioides, Nicotiana glauca, Foeniculum vulgare, and unknown grasses. Coarse sand sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: Medium sand

Total veg cover: 80 % Tree: 10 % Shrub: 50 % Herb: 20 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Vegetation dominated by Baccharis salicifolia, Artemisia californica, Salix lasiolepis, Nicotiana glauca, Rhus integrifolia, Eriogonum fasciculatum, Sambucus nigra, and Elymus condensatus. Medium sand sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Los Peñasquitos Lagoon Restoration Project
Project Number: N/A
Stream: ODP 7
Investigator(s): Sarah Krejca

Date: 1/12/2022
Town: San Diego
Photo begin file#: 35

Time: 0735
State: CA
Photo end file#: 35

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☑ Is the site significantly disturbed?

Location Details:
Los Peñasquitos Lagoon Restoration Project - Phase I Aquatic Resource Delineation Report Review Area

Projection: WGS 84 **Datum:** NAD 83
Coordinates: 32.912377, -117.239278

Potential anthropogenic influences on the channel system:
Upstream runoff from urban development.

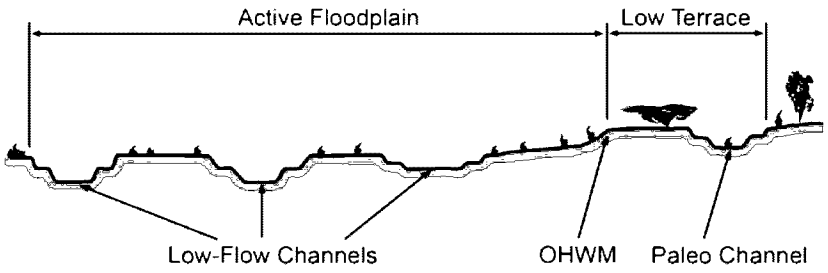
Brief site description:
Within open space preserve, adjacent to ranger house, unpaved driveway, and dirt foot path.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☑ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
  - ☐ History of recent effective discharges
  - ☐ Results of flood frequency analysis
  - ☐ Most recent shift-adjusted rating
  - ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

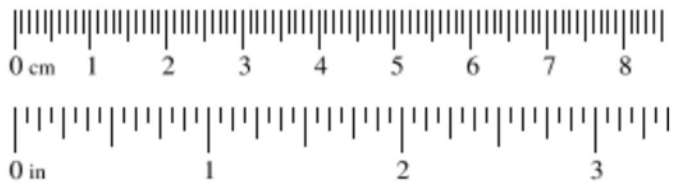


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

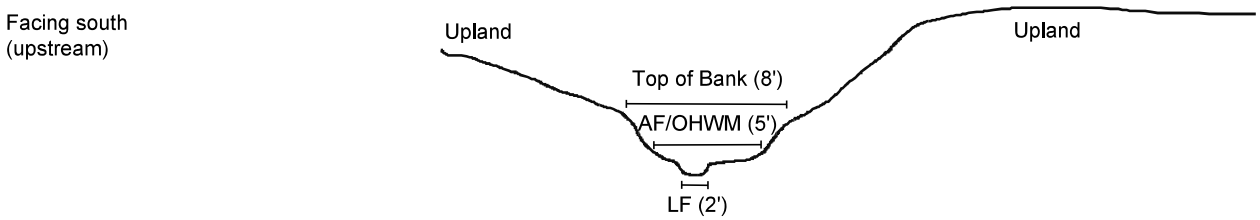
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Los Peñasquitos Lagoon Restoration Project **Cross section ID:** ODP 7 **Date:** 1/12/2022 **Time:** 0735

Cross section drawing:



OHWM

GPS point: 32.912377, -117.239278

Indicators:

- ☑ Change in average sediment texture
- ☑ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:
Approximately 5-foot wide OHWM defined by a break in bank slope, change in average sediment texture, and change in vegetation species and cover. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit:

☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: Just below OHWM

Characteristics of the floodplain unit:

Average sediment texture: Pebble

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:
Approximately 2-foot wide low-flow channel (LF). Drift/debris present as dead vegetation. Pebble sediment texture with some medium sand.

Project ID: Los Peñasquitos Lagoon Restoration Project **Cross section ID:** ODP 7 **Date:** 1/12/2022 **Time:** 0735

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: Fine silt

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 5-foot wide active floodplain (AF). Drift/debris present as dead vegetation. Fine silt sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: Coarse silt

Total veg cover: 90 % Tree: 30 % Shrub: 35 % Herb: 25 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☑ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
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- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Vegetation dominated by Baccharis sarothroides, Sambucus nigra, Ribes speciosum, Rhus integrifolia, and Bromus diandrus. Coarse silt sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Los Peñasquitos Lagoon Restoration Project
Project Number: N/A
Stream: ODP 8
Investigator(s): Sarah Krejca

Date: 1/12/2022
Town: San Diego
Photo begin file#: 37

Time: 1510
State: CA
Photo end file#: 37

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Los Peñasquitos Lagoon Restoration Project - Phase I Aquatic Resource Delineation Report Review Area

Projection: WGS 84 **Datum:** NAD 83
Coordinates: 32.916271, -117.237432

Potential anthropogenic influences on the channel system:
Runoff from adjacent road (Sorrento Valley Road) and railroad tracks; vegetation removal; trash. Likely adjacent to culvert under railroad but unable to access to confirm due to deep water, dense vegetation, and fencing.

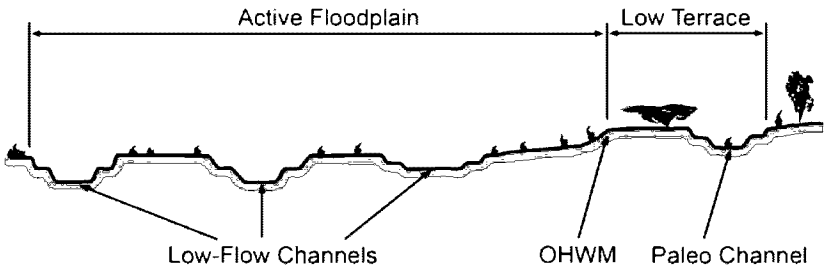
Brief site description:
Drainage/area of standing water between Sorrento Valley Road and railroad tracks.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☑ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
  - ☐ History of recent effective discharges
  - ☐ Results of flood frequency analysis
  - ☐ Most recent shift-adjusted rating
  - ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units



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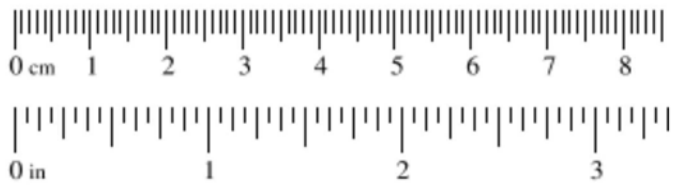
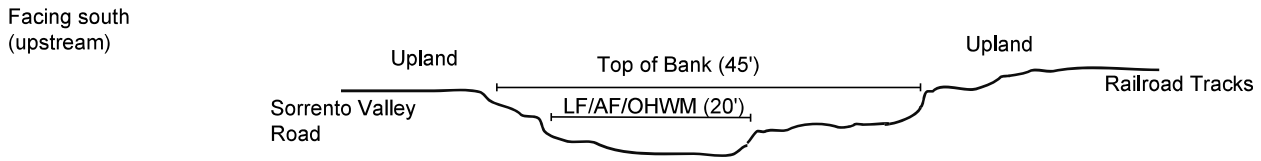
1/128 0.00015	0.0039	Clay	Mud



Project ID: Los Peñasquitos Lagoon Restoration Project **Cross section ID:** ODP 8 **Date:** 1/12/2022 **Time:** 1510

Cross section drawing:



OHWM

GPS point: 32.916271, -117.237432

Indicators:

- ☑ Change in average sediment texture
- ☑ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:
Approximately 20-foot wide OHWM defined by a gradual break in bank slope, change in average sediment texture, and change in vegetation species and cover. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit:

☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: Just below OHWM

Characteristics of the floodplain unit:

Average sediment texture: Unknown (under water)

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☑ Other: Surface water
- ☐ Other: _____
- ☐ Other: _____

Comments:
Low-flow channel (LF) assumed within area of standing water during site visit given low rain/drought year. Difficult to assess sediment texture within open waters/LF areas.

Project ID: Los Peñasquitos Lagoon Restoration Project **Cross section ID:** ODP 8 **Date:** 1/12/2022 **Time:** 1510

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: Medium silt

Total veg cover: 10 % Tree: 10 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☑ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 20-foot wide active floodplain (AF). Drift/debris present as trash and dead vegetation. Medium silt sediment texture throughout. Vegetation dominated by Salix lasiolepis; appeared that many Salix lasiolepis recently cut down.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: Coarse silt

Total veg cover: 30 % Tree: 20 % Shrub: 0 % Herb: 10 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☑ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Vegetation dominated by Helminthotheca echioides along the east and Salix lasiolepis and Cortaderia selloana along the west. Coarse silt sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Los Peñasquitos Lagoon Restoration Project
Project Number: N/A
Stream: ODP 9
Investigator(s): Sarah Krejca

Date: 1/20/2022
Town: San Diego
Photo begin file#: 26

Time: 1210
State: CA
Photo end file#: 26

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☑ Is the site significantly disturbed?

Location Details:
Los Peñasquitos Lagoon Restoration Project - Phase I Aquatic Resource Delineation Report Review Area

Projection: WGS 84 **Datum:** NAD 83
Coordinates: 32.921695, -117.246492

Potential anthropogenic influences on the channel system:
Upstream runoff from urban development; slightly bermed areas; adjacent to railroad tracks and hiking trail.

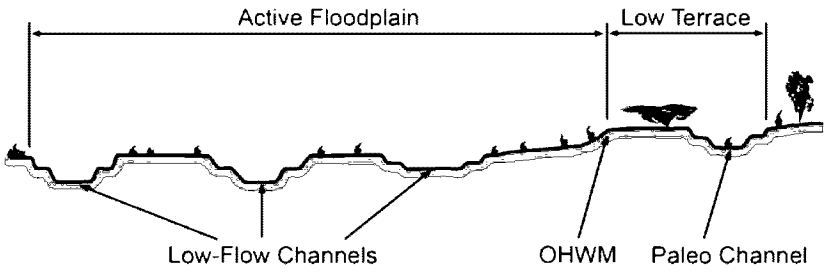
Brief site description:
Lagoon adjacent to railroad tracks (northeast) and open space, including a foot path/dirt road to the southwest. Slightly bermed areas present in this section of the lagoon.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☑ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
  - ☐ History of recent effective discharges
  - ☐ Results of flood frequency analysis
  - ☐ Most recent shift-adjusted rating
  - ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

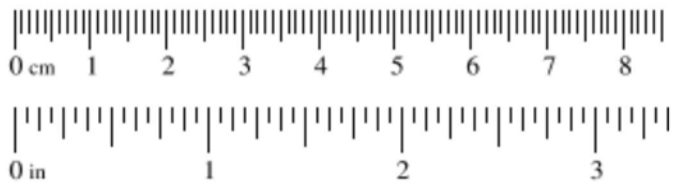


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

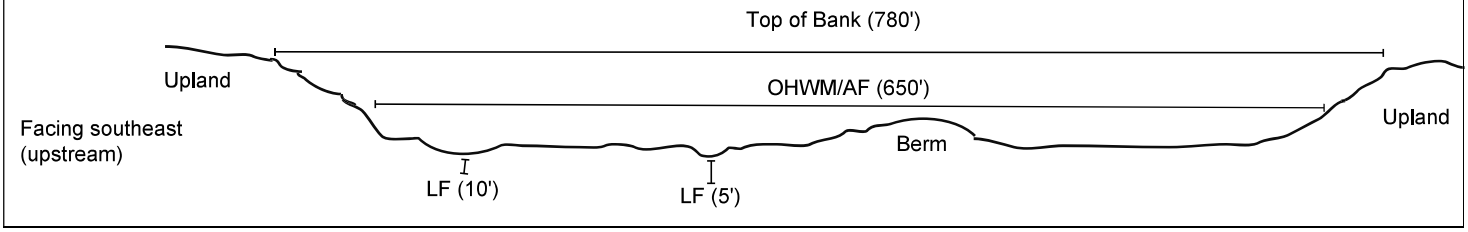
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Los Peñasquitos Lagoon Restoration Project **Cross section ID:** ODP 9 **Date:** 1/20/2022 **Time:** 1210

Cross section drawing:



OHWM

GPS point: 32.921695, -117.246492

Indicators:

- [x] Change in average sediment texture
- [x] Change in vegetation species
- [ ] Change in vegetation cover
- [x] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments:
Approximately 650-foot wide OHWM defined by a break in bank slope, change in average sediment texture, and change in vegetation species. Slightly bermed area located within the OHWM. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit:

- [x] Low-Flow Channel
- [ ] Active Floodplain
- [ ] Low Terrace/Upland

GPS point: 32.921996, -117.245962

Characteristics of the floodplain unit:

Average sediment texture: unknown (under water)

Total veg cover: 65 % Tree: 0 % Shrub: 0 % Herb: 65 %

Community successional stage:

- [ ] NA
- [x] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [ ] Ripples
- [ ] Drift and/or debris
- [x] Presence of bed and bank
- [ ] Benches
- [ ] Soil development
- [ ] Surface relief
- [x] Other: Surface water
- [ ] Other: _____
- [ ] Other: _____

Comments:
Multiple low-flow channels (LFs) measuring approximately 5 feet wide and 10 feet wide. Difficult to assess sediment texture within open waters/LF areas. Vegetation dominated by Salicornia pacifica and Frankenia salina. Could not access portions of the AF due to State Parks guidance to not trample vegetation; thus, the 10-foot wide LF was assessed via aerials and there were potentially more LFs within the AF.

Project ID: Los Peñasquitos Lagoon Restoration Project **Cross section ID:** ODP 9 **Date:** 1/20/2022 **Time:** 1210

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: Medium silt

Total veg cover: 100 % Tree: 0 % Shrub: 0 % Herb: 100 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☑ Other: Drainage patterns
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 650-foot wide active floodplain (AF). Drift/debris present as dead vegetation; drainage patterns evident as vegetation pushed over in direction of flow. Vegetation dominated by Festuca perennis, Frankenia salina, Salicornia pacifica, Foeniculum vulgare, and unknown grasses. Medium silt sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: 32.921390, -117.246908

Characteristics of the floodplain unit:

Average sediment texture: Medium sand

Total veg cover: 95 % Tree: 0 % Shrub: 40 % Herb: 55 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

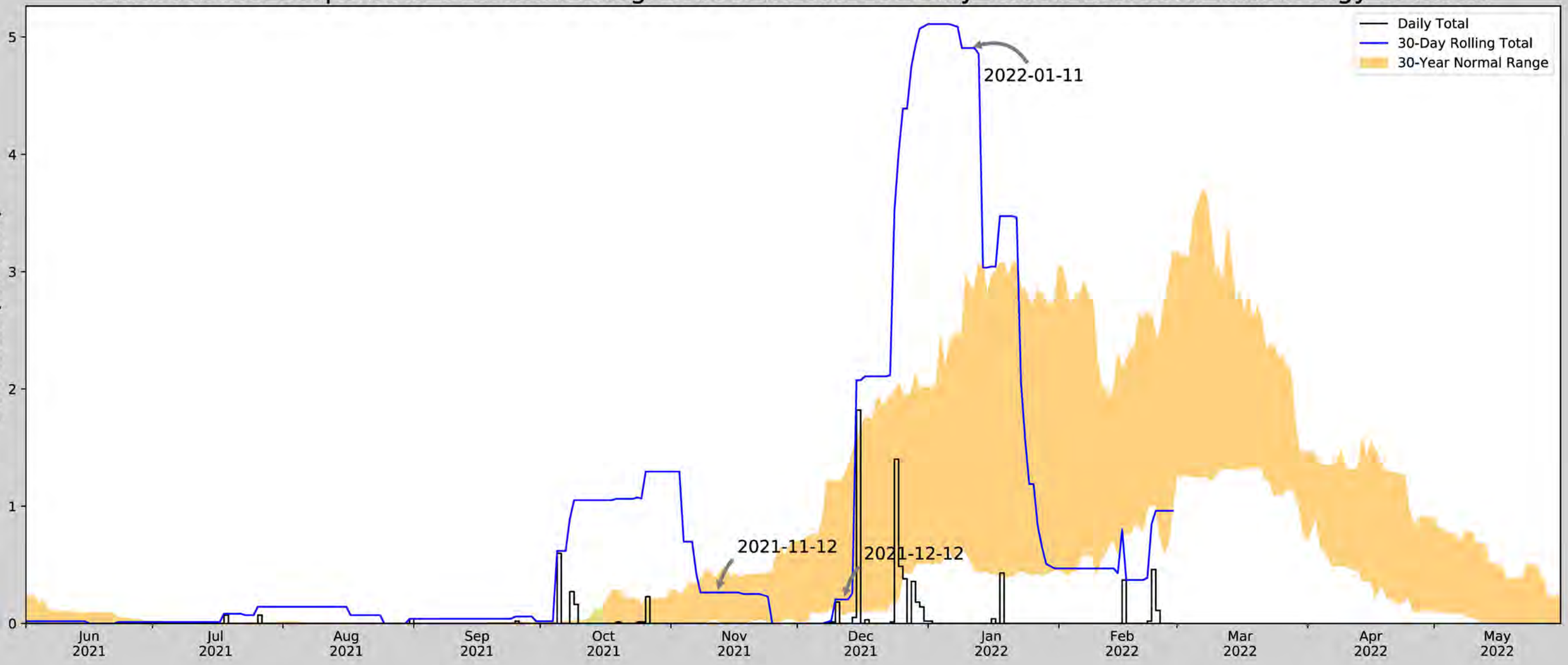
Comments:

No true low terrace present; continues from AF to upland. Vegetation dominated by Baccharis pilularis, Artemisia californica, Bromus rubens, and Carpobrotus edulis. Medium sand sediment texture throughout.

APPENDIX D

ANTECEDENT PRECIPITATION TOOL OUTPUT

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	32.915129, -117.239349
Observation Date	2022-01-11
Elevation (ft)	15.65
Drought Index (PDSI)	Severe drought
WebWIMP H_2O Balance	Wet Season

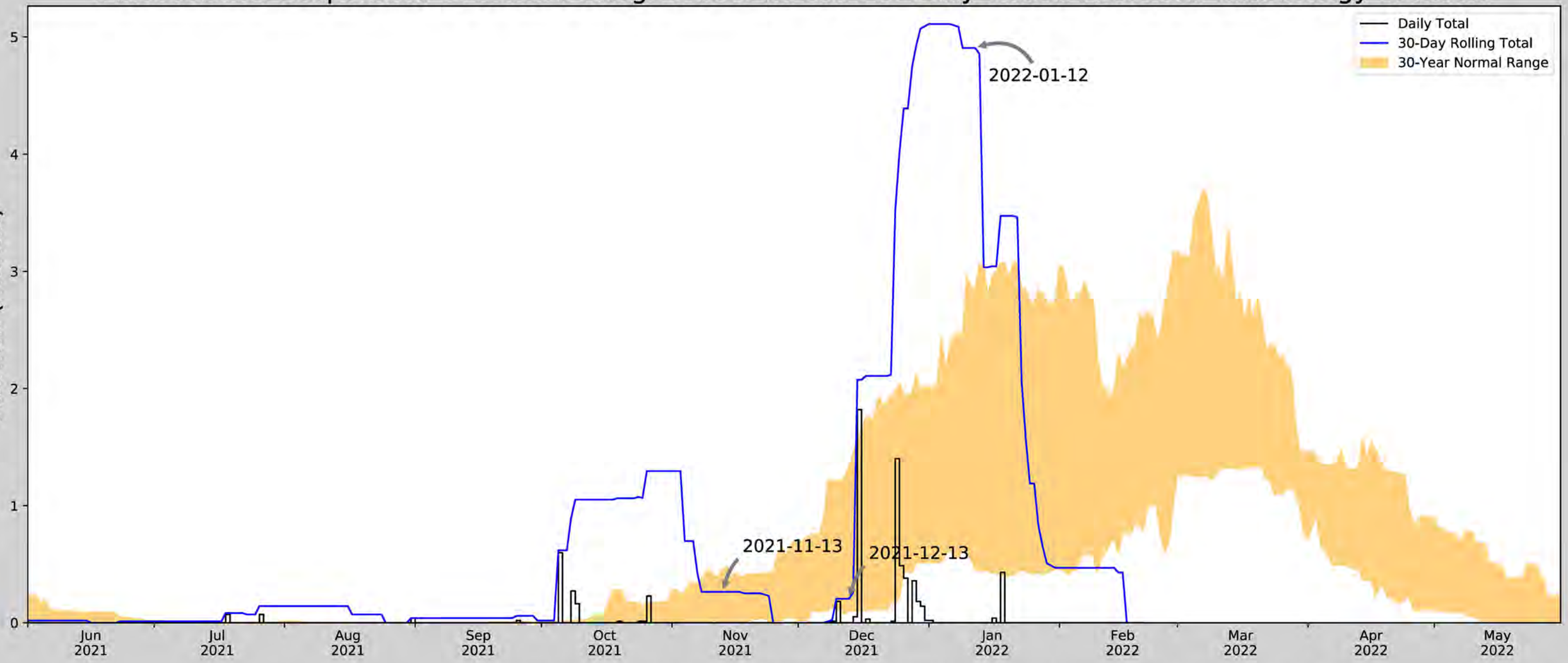
30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2022-01-11	0.538189	2.848425	4.905512	Wet	3	3	9
2021-12-12	0.070866	1.240551	0.204724	Normal	2	2	4
2021-11-12	0.025591	0.399213	0.26378	Normal	2	1	2
Result							Wetter than Normal - 15

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
OCEANSIDE 2.3 WNW	33.233, -117.3498	259.843	22.875	244.193	15.88	824	0
IMPERIAL BEACH 3.3 E	32.5738, -117.0625	138.123	25.726	122.473	14.727	2463	0
SAN MARCOS 2.5 ENE	33.1472, -117.1316	666.011	17.207	650.361	18.934	1448	90
OCEANSIDE 8.4NE	33.27, -117.2663	251.969	24.569	236.319	16.862	3	0
EL CAJON 2.3ENE	32.8112, -116.9254	609.908	19.584	594.258	20.451	4	0
CARLSBAD 2.2SE	33.1427, -117.3206	21.982	16.413	6.332	7.49	1	0
SAN DIEGO COUNTRY ESTATES 1.5	33.0158, -116.8068	1474.081	26.021	1458.431	49.659	1	0
EL CAJON 3.5 SSE	32.7564, -116.938	522.966	20.648	507.316	19.767	1	0
CHULA VISTA	32.64, -117.0858	56.102	20.998	40.452	10.299	6150	0
ALPINE	32.8358, -116.7775	1694.882	27.355	1679.232	58.245	271	0
EL CAJON	32.8006, -116.9281	495.079	19.722	479.429	18.33	105	0
EL CAPITAN DAM	32.8856, -116.815	600.066	24.702	584.416	25.552	41	0
LAKESIDE 2 E	32.8536, -116.8947	689.961	20.444	674.311	22.985	10	0
SAN DIEGO MONTGOMERY FLD	32.8158, -117.1394	416.995	8.986	401.345	7.65	31	0

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	32.915129, -117.239349
Observation Date	2022-01-12
Elevation (ft)	15.65
Drought Index (PDSI)	Severe drought
WebWIMP H_2O Balance	Wet Season

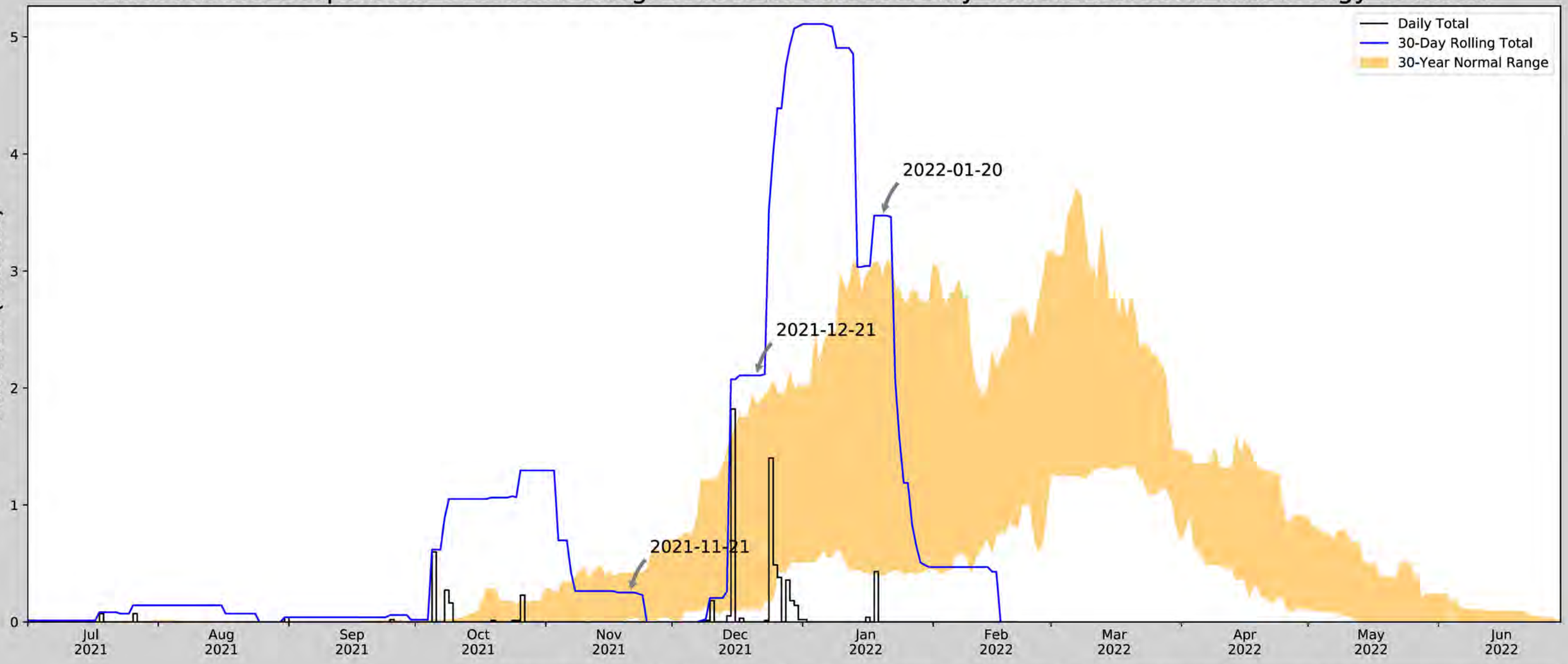
30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2022-01-12	0.462598	2.848425	4.905512	Wet	3	3	9
2021-12-13	0.102756	1.331496	0.204724	Normal	2	2	4
2021-11-13	0.008268	0.455906	0.26378	Normal	2	1	2
Results							Wetter Than Normal - 15

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
OCEANSIDE 2.3 WNW	33.233, -117.3498	259.843	22.875	244.193	15.88	824	0
IMPERIAL BEACH 3.3 E	32.5738, -117.0625	138.123	25.726	122.473	14.727	2463	0
SAN MARCOS 2.5 ENE	33.1472, -117.1316	666.011	17.207	650.361	18.934	1448	90
OCEANSIDE 8.4NE	33.27, -117.2663	251.969	24.569	236.319	16.862	3	0
EL CAJON 2.3ENE	32.8112, -116.9254	609.908	19.584	594.258	20.451	4	0
CARLSBAD 2.2SE	33.1427, -117.3206	21.982	16.413	6.332	7.49	1	0
SAN DIEGO COUNTRY ESTATES 1.5	33.0158, -116.8068	1474.081	26.021	1458.431	49.659	1	0
EL CAJON 3.5 SSE	32.7564, -116.938	522.966	20.648	507.316	19.767	1	0
CHULA VISTA	32.64, -117.0858	56.102	20.998	40.452	10.299	6150	0
ALPINE	32.8358, -116.7775	1694.882	27.355	1679.232	58.245	271	0
EL CAJON	32.8006, -116.9281	495.079	19.722	479.429	18.33	105	0
ESCONDIDO #2	33.1211, -117.09	600.066	16.655	584.416	17.228	17	0
EL CAPITAN DAM	32.8856, -116.815	600.066	24.702	584.416	25.552	24	0
LAKESIDE 2 E	32.8536, -116.8947	689.961	20.444	674.311	22.985	10	0
SAN DIEGO MONTGOMERY FLD	32.8158, -117.1394	416.995	8.986	401.345	7.65	31	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	32.915129, -117.239349
Observation Date	2022-01-20
Elevation (ft)	15.65
Drought Index (PDSI)	Severe drought
WebWIMP H_2O Balance	Wet Season

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2022-01-20	0.397638	2.944882	3.472441	Wet	3	3	9
2021-12-21	0.112205	1.862598	2.106299	Wet	3	2	6
2021-11-21	0.030709	0.414567	0.251969	Normal	2	1	2
Results							Wetter Than Normal -17

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
OCEANSIDE 2.3 WNW	33.233, -117.3498	259.843	22.875	244.193	15.88	824	0
IMPERIAL BEACH 3.3 E	32.5738, -117.0625	138.123	25.726	122.473	14.727	2463	0
SAN MARCOS 2.5 ENE	33.1472, -117.1316	666.011	17.207	650.361	18.934	1448	90
OCEANSIDE 8.4NE	33.27, -117.2663	251.969	24.569	236.319	16.862	3	0
EL CAJON 2.3ENE	32.8112, -116.9254	609.908	19.584	594.258	20.451	4	0
CARLSBAD 2.2SE	33.1427, -117.3206	21.982	16.413	6.332	7.49	1	0
SAN DIEGO COUNTRY ESTATES 1.5	33.0158, -116.8068	1474.081	26.021	1458.431	49.659	1	0
EL CAJON 3.5 SSE	32.7564, -116.938	522.966	20.648	507.316	19.767	1	0
CHULA VISTA	32.64, -117.0858	56.102	20.998	40.452	10.299	6150	0
ALPINE	32.8358, -116.7775	1694.882	27.355	1679.232	58.245	271	0
EL CAJON	32.8006, -116.9281	495.079	19.722	479.429	18.33	105	0
ESCONDIDO #2	33.1211, -117.09	600.066	16.655	584.416	17.228	17	0
EL CAPITAN DAM	32.8856, -116.815	600.066	24.702	584.416	25.552	24	0
LAKESIDE 2 E	32.8536, -116.8947	689.961	20.444	674.311	22.985	10	0

APPENDIX E

SITE PHOTOGRAPHS

Appendix E. Site Photographs[1]

Los Peñasquitos Lagoon Restoration Project – Phase I Aquatic Resources Delineation – January 11, 12, and 20, 2022

Photo 1. View of Wetland Data Form Point (WDP) 1 within southern willow scrub – disturbed, facing northeast, within Non-Wetland Water (NWW-) Wetland (W-) 1A (Carroll Canyon Creek). WDP 1 met all three wetland parameters (32.896698, -117.220250). January 12, 2022.

Photo 2. View of WDP 2 within southern willow scrub – disturbed, facing east. WDP 2 did not meet the hydric soil parameter (32.897219, -117.220659). January 12, 2022.

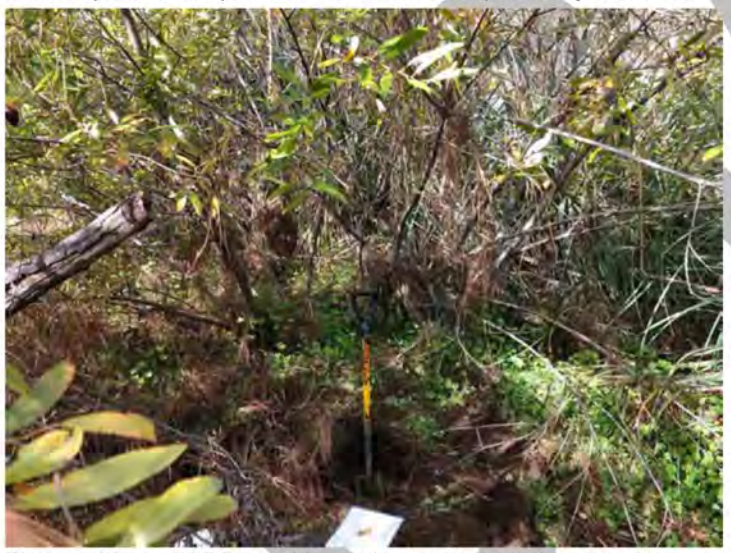


Photo 3. View of WDP 3 within southern willow scrub – disturbed, facing north. WDP 3 did not meet any of the three wetland parameters (32.897321, -117.220419). January 12, 2022.

Photo 4. Downstream view of ordinary high water mark (OHWM) Datasheet Point (ODP) 1, facing north, within NWW-1B (Carroll Canyon Creek) (32.897686, -117.220717). January 12, 2022.

[1] See corresponding Figure 6 series for photo point locations. See Aquatic Resource Delineation Report Sections 6 through 8 for a discussion of each feature.

Photo 5. Downstream view of ODP 2, facing north, within NWW-1C/NWW-W-1D (Carroll Canyon Creek) (32.904384, -117.227363). January 12, 2022.

Photo 6. View of WDP 4 within Arundo vegetation community, facing north, within NWW–W-1D (Carroll Canyon Creek). WDP 4 met all three wetland parameters (32.904423, -117.227386). January 12, 2022.

Photo 7. View of WDP 5 within southern arroyo willow riparian forest, facing north. WDP 5 did not meet any of the three wetland parameters (32.904382, -117.227419). January 12, 2022.

Photo 8. View of WDP 6 within southern arroyo willow riparian forest, facing east, within NWW-W-2A (Peñasquitos Creek/Lagoon). WDP 6 met all three wetland parameters (32.908291, -117.233383). January 12, 2022.

Photo 9. View of WDP 7 within disturbed habitat, facing east. WDP 7 did not meet any of the three wetland parameters (32.908243, -117.233193). January 12, 2022.

Photo 10. Downstream view of ODP 3, facing north, within NWW-W-2A (Peñasquitos Creek/Lagoon) (32.908838, -117.233373). January 12, 2022.

Photo 11. Overview from trail of NWW-W-2A (Peñasquitos Creek/Lagoon), facing east (32.911414, -117.235900). January 20, 2022.

Photo 12. View of WDP 8 within southern arroyo willow riparian forest, facing north, within NWW-W-2A (Peñasquitos Creek/Lagoon). The view of WDP 8 is representative of WDP 10 considering the similar vegetation and wetland hydrology. WDP 8 and WDP 10 met all three wetland parameters (32.911860, -117.235991). January 20, 2022.

Photo 13. View of WDP 9 within Diegan coastal sage scrub, facing southwest. WDP 9 did not meet any of three wetland parameters (32.911977, -117.236085). January 20, 2022.

Photo 14. Upstream view of ODP 4, facing east, within NWW-W-2A (Peñasquitos Creek/Lagoon) (32.914702 -117.239918). January 12, 2022.

Photo 15. View of WDP 11 within mule fat scrub, facing north, within NWW-W-2A (Peñasquitos Creek/Lagoon). WDP 11 met all three wetland parameters (32.915817, -117.239000). January 11, 2022.

Photo 16. View of WDP 12 within southern coastal salt marsh – degraded, facing north, within NWW-W-2A (Peñasquitos Creek/Lagoon). WDP 12 met all three wetland parameters (32.915639, -117.239461). January 11, 2022.

Photo 17. View of WDP 13 within coastal brackish marsh, facing north, within NWW-W-2A (Peñasquitos Creek/Lagoon). WDP 13 met all three wetland parameters (32.915262, -117.240429). January 11, 2022.

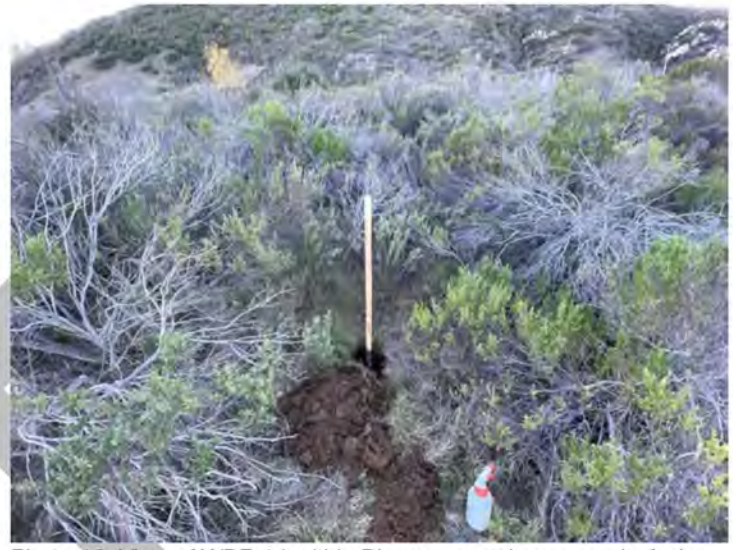


Photo 18. View of WDP 14 within Diegan coastal sage scrub, facing south. WDP 14 did not meet any of the three wetland parameters (32.915104, -117.240693). January 11, 2022.

Photo 19. View of WDP 15 within southern willow scrub, facing north, within NWW-W-2A (Peñasquitos Creek/Lagoon). WDP 15 met all three wetland parameters (32.918721, -117.241719). January 11, 2022.

Photo 20. View of WDP 16 within mule fat scrub, facing north, within NWW-W-2A (Peñasquitos Creek/Lagoon). WDP 16 met all three wetland parameters (32.918744, -117.241745). January 11, 2022.

Photo 21. View of WDP 17 within southern coastal salt marsh – degraded, facing west, within NWW-W-2A (Peñasquitos Creek/Lagoon). WDP 17 met all three wetland parameters (32.918240, -117.242401). January 11, 2022.

Photo 22. View of alkali meadow, facing south, within NWW-W-2A (Peñasquitos Creek/Lagoon) (32.918127, -117.242455). January 11, 2022.

Photo 23. View of WDP 18 within coastal and valley freshwater marsh, facing south, within NWW-W-2A (Peñasquitos Creek/Lagoon). WDP 18 met all three wetland parameters (32.917830, -117.243277). January 11, 2022.

Photo 24. View of WDP 19 within Diegan coastal sage scrub, facing west. WDP 19 did not meet any of the three wetland parameters (32.917736, -117.243726). January 11, 2022.

Photo 25. View of WDP 29 (white arrow) within non-native grassland, facing northwest, within NWW-2B (Peñasquitos Creek/Lagoon). WDP 29 did not meet the hydric soil or wetland hydrology parameters (32.921100, -117.245211). January 20, 2022.

Photo 26. Upstream view of ODP 9, facing east, within NWW-W-2A/NWW-2B (Peñasquitos Creek/Lagoon) (32.921695, -117.246492). January 20, 2022.

Photo 27. View of WDP 20 within southern willow scrub, facing west, within NWW-W-2A (Peñasquitos Creek/Lagoon). WDP 20 met all three wetland parameters (32.924831, -117.248820). January 11, 2022.

Photo 28. View of WDP 21 within southern coastal salt marsh, facing south, within Wetland (W-) 1 (Peñasquitos Creek/Lagoon). WDP 21 met all three wetland parameters (32.924822, -117.248906). January 11, 2022.

Photo 29. View of WDP 22 within Diegan coastal sage scrub, facing north, within a portion of Peñasquitos Creek/Lagoon only jurisdictional by the California Department of Fish and Wildlife (CDFW) (i.e., within CDFW top of bank, but outside of Corps Section 404 High Tide Line [HTL]). WDP 22 did not meet any of the three wetland parameters (32.924866, -117.248754). January 11, 2022.

Photo 30. View of WDP 23 within disturbed wetland, facing north, within NWW-W-3 (NWW-1 for CDFW). WDP 23 met all three wetland parameters (32.903219, -117.228116). January 20, 2022.

Photo 31. View of WDP 24 within disturbed habitat, facing west. WDP 24 did not meet any of the three wetland parameters (32.903154, -117.228546). January 20, 2022.

Photo 32. Downstream view of ODP 5, facing east, within NWW-W-3 (NWW-1 for CDFW) (32.903554, -117.227563). January 20, 2022.

Photo 33. Downstream view of ODP 6, facing north, within NWW-5 (NWW-3 for CDFW) (32.911857, -117.239011). January 12, 2022.

Photo 34. View of WDP 25 within southern willow scrub, facing west. WDP 25 did not meet the hydrophytic vegetation or wetland hydrology parameters (32.912300, -117.239121). January 12, 2022.

Photo 35. View of WDP 26 and upstream view of ODP 7 within Diegan coastal sage scrub, facing south, within NWW-5 (NWW-3 for CDFW). WDP 26 did not meet any of the three wetland parameters (32.912402, -117.239287). January 12, 2022.

Photo 36. View of WDP 27 within Diegan coastal sage scrub, facing west. WDP 27 did not meet any of the three wetland parameters (32.912545, -117.239058). January 12, 2022.

Photo 37. Upstream view of ODP 8, facing south, within NWW-6 (NWW-4 for CDFW) (32.9163400, -117.237378). January 12, 2022.

Photo 38. View of WDP 28 (white arrow) within mule fat scrub, facing north, within NWW-7 (NWW-5 for CDFW). WDP 28 did not meet any of the three wetland parameters (32.917501, -117.238035). January 12, 2022.

APPENDIX F

LITERATURE CITATIONS AND REFERENCES

APPENDIX F. LITERATURE CITATIONS AND REFERENCES

Baldwin, B. G., D. H. Goldman, D. J. Keil, R. Patterson, and T. J. Rosatti (eds). 2012. *The Jepson Manual: Vascular Plants of California, Second Edition, Thoroughly Revised and Expanded.* University of California Press, Berkeley, California. 1400 pp.

Blackhawk Environmental. 2020. *Jurisdictional Delineation Report, Los Penasquitos Lagoon Restoration Project – Phase 1, San Diego, San Diego County, CA*. September 21.

Blackhawk Environmental. 2021. *Biological Technical Report – Draft, Los Peñasquitos Lagoon Restoration – Phase*. August 18.

California Fish and Game Commission (CFGC). 1994. *Fish and Game Commission Comment to the Department of Fish and Game on the Wetland Policy Implementation Proposal.*

California State Water Resources Control Board (SWRCB). 2021. *State Policy for Water Quality Control: State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State*. April 6.

City of San Diego. 2018. *San Diego Municipal Code, Land Development Code – Biology Guidelines*. February 1.

Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual*. Technical Report Y-87-1. U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi. 100 pp. with Appendices.

Environmental Science Associates (ESA). 2016. *Draft Biological Technical Report, Sorrento/Los Peñasquitos Waterways Restoration and Improvement Program, City of San Diego, San Diego County, California*. June 21.

Google Earth Pro V 7.3.4.8248. 2021. San Diego County, California. 32°54'53.24"N, 117°14'19.39"W. Eye alt 16,850 feet. Image Google. Last accessed January 2022.

Holland, R. 1986. *Preliminary Descriptions of the Terrestrial Natural Communities of California*. Unpublished document, California Department of Fish and Game, Natural Heritage Division. Sacramento, CA.

Jepson Flora Project (eds.) 2022. Jepson eFlora. Last accessed February 2022. http://ucjeps.berkeley.edu/eflora/

Munsell Color. 2015. *Munsell Soil-Color Charts with Genuine Munsell Color Chips, 2009 Year Revised*. Grand Rapids, MI.

National Oceanic and Atmospheric Administration (NOAA). 2022. NOAA Tide Predictions. Last accessed January 2022. https://tidesandcurrents.noaa.gov/tide_predictions.html

National Oceanic and Atmospheric Administration (NOAA). 2020. National Centers for Environmental Information, State of the Climate: Drought for May 2021. Last accessed May 2021. www.ncdc.noaa.gov/sotc/drought

Natural Resources Conservation Service (NRCS). No date. Soil Data Access (SDA) Hydric Soils List. Last accessed January 2022. https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcseprd1316620.html

Natural Resources Conservation Service (NRCS). 2021. Agricultural Applied Climate Information System (AgACIS) Database. Monthly Total Precipitation for San Diego 13.9 N station, CA 2020 - 2021. Last accessed January 2022. http://agacis.rcc-acis.org/?fips=06073

Natural Resources Conservation Service (NRCS). 2018a. *Field Indicators of Hydric Soils in the United States, A Guide for Identifying and Delineating Hydric Soils, Version 8.2.*

Natural Resources Conservation Service (NRCS). 2018b. Official Soil Series Descriptions (Online). San Diego County, California. Version 10, Sep 13, 2018. Last accessed December 2021. https://soilseries.sc.egov.usda.gov/osdname.aspx.

Natural Resources Conservation Service (NRCS). 1973. *Soil Survey-San Diego Area, California.* November.

NetrOnline. 2022. Historic Aerials (1953 – 2018). Last accessed September 2021. https://www.historicaerials.com/

Oberbauer, T., M. Kelly, and J. Buegge. 2008. *Draft Vegetation Communities of San Diego County.* March.

San Diego Regional Water Quality Control Board (SDRWQCB). 2020. San Diego Basin Plan Map Webapp. October. Last accessed February 2022. https://gispublic.waterboards.ca.gov/portal/apps/webappviewer/index.html?id=1f58bd97fdcd45329a5e16e373ede24d

U.S. Army Corps of Engineers (Corps). n.d. TNWs & Navigable Waters on Los Angeles District. https://www.spl.usace.army.mil/Missions/Regulatory/Jurisdictional-Determination/Navigable-Waterways/

U.S. Army Corps of Engineers (Corps). 2021. Antecedent Precipitation Tool (APT) - v1.0.19. Last accessed February 2022. https://github.com/jDeters-USACE/Antecedent-Precipitation-Tool/releases/tag/v1.0.19

U.S. Army Corps of Engineers (Corps). 2018. *Arid West 2018 Regional Wetland Plant List. National Wetland Plant List, version 3.4*. Last accessed May 2021. http://wetland-plants.usace.army.mil/nwpl_static/data/DOC/lists_2018/Regions/pdf/reg_AW_2018v1.pdf

U.S. Army Corps of Engineers (Corps). 2017. *USACE Los Angeles District's Minimum Standards for Acceptance of Aquatic Resources Delineation Reports.*

U.S. Army Corps of Engineers (Corps). 2016. *Updated Map and Drawing Standards for the South Pacific Division Regulatory Program.* February 10.

U.S. Army Corps of Engineers (Corps). 2010. *Updated Datasheet for the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States.* K.E. Curtis and R.W. Lichvar. EDRC/CRREL TN-10-1. Hanover, NH: U.S. Army Engineer Research and Development Center.

U.S. Army Corps of Engineers (Corps). 2008a. *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States, A*

Delineation Manual. R.W. Lichvar, and S.M. McColley. ERDC/CRREL TR-08-12. Hanover, NH: U.S. Army Engineer Research and Development Center.

U.S. Army Corps of Engineers (Corps). 2008b. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0).* Eds. J.S. Wakely, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-08-28. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

U.S. Army Corps of Engineers (Corps). 2000. Accessing and using meteorological data to evaluate wetland hydrology. Sprecher, S.W., and A.G. Warne. ERDC TR-WRAP-00-1. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

U.S. Coast Guard. 1986. Memorandum re: Determination of Navigability, Los Penasquitos Lagoon, San Diego County, CA. March 5. https://www.spl.usace.army.mil/Portals/17/docs/regulatory/JD/NavigableWater/CA_Sec10_Nav_Det/1986-03-05_D11_Memo.pdf?ver=I-G0iUHtuYFGUC3peX0lww%3d%3d

U.S. Department of Agriculture (USDA), Soil Conservation Service and Forest Service. 1973. *Soil Survey of San Diego Area, California*. December.

U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS). 2019. *National Soil Survey Handbook, Title 430-VI*. November.

U.S. Fish and Wildlife Service (USFWS). 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. December.

U.S. Fish and Wildlife Service (USFWS). 2021. National Wetlands Inventory website. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. Last accessed July 2021. http://www.fws.gov/wetlands/

U.S. Geological Survey (USGS). 2020. The National Map, Advanced Viewer. U.S. Department of Interior. Last accessed November 2021. https://viewer.nationalmap.gov/advanced-viewer/

U.S. Geological Society (USGS). 2019. *What is Tamarisk.* U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. Last accessed February 2022. https://www.usgs.gov/faqs/what-tamarisk

University of California Davis Sustainability Indicators Group (UCD SIG). n.d. San Diego. Last accessed February 2022. https://indicators.ucdavis.edu/water/regions/18070304

University of California – Santa Barbara (UCSB). No date. Aerial Photography Collection. (1932 – 1941). Last accessed February 2022. https://mil.library.ucsb.edu/ap_indexes/FrameFinder/

APPENDIX G

ORM BULK UPLOAD AQUATIC RESOURCES OR CONSOLIDATED EXCEL SPREADSHEET

Waters_Name	State	Cowardin_Code	HGM_Code	Meas_Type	Amount	Units	Waters_Type	Latitude	Longitude	Local_Waterway
NWW-W-1A	CALIFORNIA	PFO		Area	0.175	ACRE	DELINEATE	32.897353	-117.220264	Carroll Canyon Creek
NWW-1B	CALIFORNIA	R5		Area	2.595	ACRE	DELINEATE	32.899513	-117.222353	Carroll Canyon Creek
NWW-1C	CALIFORNIA	R5		Area	0.399	ACRE	DELINEATE	32.903997	-117.226914	Carroll Canyon Creek
NWW-W-1D	CALIFORNIA	PFO		Area	0.660	ACRE	DELINEATE	32.903845	-117.226712	Carroll Canyon Creek
NWW-W-2A	CALIFORNIA	PEM		Area	147.633	ACRE	DELINEATE	32.915648	-117.239302	Peñasquitos Creek/Lagoon
NWW-2B	CALIFORNIA	E1		Area	10.065	ACRE	DELINEATE	32.923104	-117.248113	Peñasquitos Creek/Lagoon
NWW-W-3	CALIFORNIA	R4		Area	0.148	ACRE	DELINEATE	32.903176	-117.228164	Peñasquitos Creek/Lagoon
NWW-4	CALIFORNIA	R6		Area	0.004	ACRE	DELINEATE	32.911364	-117.237226	Peñasquitos Creek/Lagoon
NWW-5	CALIFORNIA	R6		Area	0.053	ACRE	DELINEATE	32.912130	-117.239132	Peñasquitos Creek/Lagoon
NWW-6	CALIFORNIA	R4		Area	0.105	ACRE	DELINEATE	32.916108	-117.237276	Peñasquitos Creek/Lagoon
NWW-7	CALIFORNIA	R6		Area	0.004	ACRE	DELINEATE	32.917504	-117.237997	Peñasquitos Creek/Lagoon
W-1	CALIFORNIA	E2EM		Area	2.295	ACRE	DELINEATE	32.925026	-117.248837	Peñasquitos Creek/Lagoon

APPENDIX H

GIS DATA (PROVIDED ELECTRONICALLY TO AGENCIES)

Appendix H: Focused California Gnatcatcher Survey Report for the Flintkote Avenue Site (2023)

DUDEK
MAIN OFFICE
605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 800.450.1818 F 760.632.0164

September 11, 2023 11673.67

U.S. Fish and Wildlife Service
Attention: Recovery Permit Coordinator
2177 Salk Avenue, Suite 250
Carlsbad, California 92008

Subject: Focused California Gnatcatcher Survey Report for the Flintkote Avenue Site, City of San Diego, San Diego County, California

Dear Recovery Permit Coordinator:

This report documents the results of three protocol-level presence/absence surveys for the coastal California gnatcatcher (*Polioptila californica californica*) conducted by Dudek biologists between April 25 and May 15, 2023 at the Flintkote Avenue site associated with the City of San Diego's Municipal Waters Maintenance Program and Los Peñasquitos Lagoon Restoration Phase 1 Project. The site includes three discrete survey areas located off Flintkote Avenue in the City of San Diego and covers approximately 9.6 acres of suitable habitat (i.e., Diegan coastal sage scrub, southern maritime chaparral) for the coastal California gnatcatcher (Figure 1).

The California gnatcatcher is a federally listed threatened species and a California Department of Fish and Wildlife (CDFW) Species of Special Concern. It is closely associated with coastal sage scrub habitat and is therefore threatened primarily by loss, degradation, and fragmentation of this habitat. The California gnatcatcher typically occurs below 820 feet above mean sea level (amsl) within 22 miles of the coast and 1,640 feet amsl for inland regions (Atwood and Bolsinger 1992). Studies have suggested that gnatcatchers avoid nesting on very steep slopes (greater than 40%) (Bontrager 1991). California gnatcatcher is also impacted by brown-headed cowbird (*Molothrus ater*) nest parasitism (Braden et al. 1997).

This report is intended to satisfy reporting requirements for surveys conducted by Kamarul Muri as a listed authorized individual under permit number #TE-813545.

Project Location and Existing Conditions

The 9.6-acre survey area consists of three discrete areas located to the east and west of Flintkote Avenue on the west side of Los Peñasquitos Canyon in the City of San Diego, California. The site is mapped in Section 31, Township 14 South, Range 3 West and Section 6, Township 15 South, Range 3 West of the Del Mar U.S. Geological Survey 7.5-minute quadrangle and is centered at latitude 32.90659° N and longitude 117.23291° W. Suitable habitat within the survey area is located along the bottom of the slopes to the west of Los Peñasquitos Creek on the west side of Flintkote Avenue and immediately adjacent to Los Peñasquitos Creek to the east of Flintkote Avenue.

Four soils are identified on the US Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) soil survey within the survey area: Corralitos loamy sand (CsC), 5 to 9 percent slopes, Terrace escarpments (TeF), Chino silt loam, saline, 0 to 2 percent slopes (CkA), and Altamont clay, 30 to 50 percent slopes (AtF) (USDA 2023). Elevations in the study area range from approximately 18 to 315 feet amsl.

Vegetation Communities

The 9.6-acre survey area consists mostly of Diegan coastal sage scrub, but also includes riparian and wetland areas associated with Los Peñasquitos Creek, non-native vegetation communities, and disturbed/developed lands. There are approximately 7.1 acres of coastal sage scrub (including 1.3 acres mapped as disturbed) within the survey area dominated by California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), and coyote brush (*Baccharis pilularis*). Habitat in the northern-most portion of the survey area includes relatively undisturbed coastal sage scrub along the foot of the east-facing slopes and in the area west of Flintkote Ave. Habitat to the east of Flintkote Avenue includes somewhat disturbed coastal sage scrub dominated primarily by coyote bush with open areas associated with past physical disturbance and concrete debris. Habitat in the southern-most portion of the survey area is relatively undisturbed and dominated by California sagebrush and coyote brush, with moderate cover of non-native grasses in openings. The portion of the survey area along the existing concrete-lined channel to the east of Flintkote Avenue is generally lacking vegetation; no suitable habitat was associated with the concrete-lined channel.

Methods

The entire study area was surveyed three times by Dudek biologist Kamarul Muri (Permit # TE-813545) in April and May 2023. The schedule of surveys and a summary of conditions is provided in Table 1. The surveys were conducted in conformance with the currently accepted protocol of the U.S. Fish and Wildlife Service (USFWS 1997) for projects in an enrolled Natural Communities Conservation Plan jurisdiction.

Table 1. Schedule of Surveys

Date	Time	Surveyor	Survey Conditions
4/25/23	9:01 AM–11:17 AM	K. Muri	59–66°F; 100% cloud cover; 1–3 mph wind
5/9/23	10:00 AM–12:06 PM	K. Muri	66°F; 0% cloud cover; 1–8 mph wind
5/15/23	9:20 AM–11:30 AM	K. Muri	63–64°F; 100% cloud cover; 2–5 mph wind

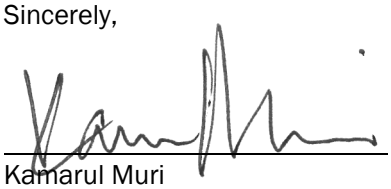
A digital recording of California gnatcatcher vocalizations was played approximately every 50 to 100 feet to induce responses from potentially present gnatcatchers. If a gnatcatcher was detected, playback of the recorded vocalizations was immediately terminated to minimize potential for harassment. A digital field map with a recent aerial imagery base in the esri Field Maps mobile application was used to navigate the site and map any gnatcatchers detected. Binoculars (10 x 42) were used to aid in detecting and identifying bird species. Weather conditions, time of day, and season were appropriate for the detection of gnatcatchers. Survey routes are shown in Figure 2.

Results

One California gnatcatcher pair was observed in approximately the same location on the west side of Flintkote Avenue during all three survey visits (Figure 2). While a nest was not directly observed, the pair were seen carrying food to a potential nest location during the third and final visit on May 15, 2023. California gnatcatcher were not observed using habitat on the opposite (east) side of Flintkote Avenue or in the southern-most area of habitat along the north-facing slopes above Flintkote Avenue.

A full list of wildlife species observed during the surveys is provided in Appendix A. I certify that the information in this survey report and attached exhibits fully and accurately represents my work. Feel free to contact me at kmuri@dudek.com with questions or if you require additional information.

Sincerely,



Kamarul Muri
Senior Biologist; Permit # TE-813545

Att.: Figures 1-2

References

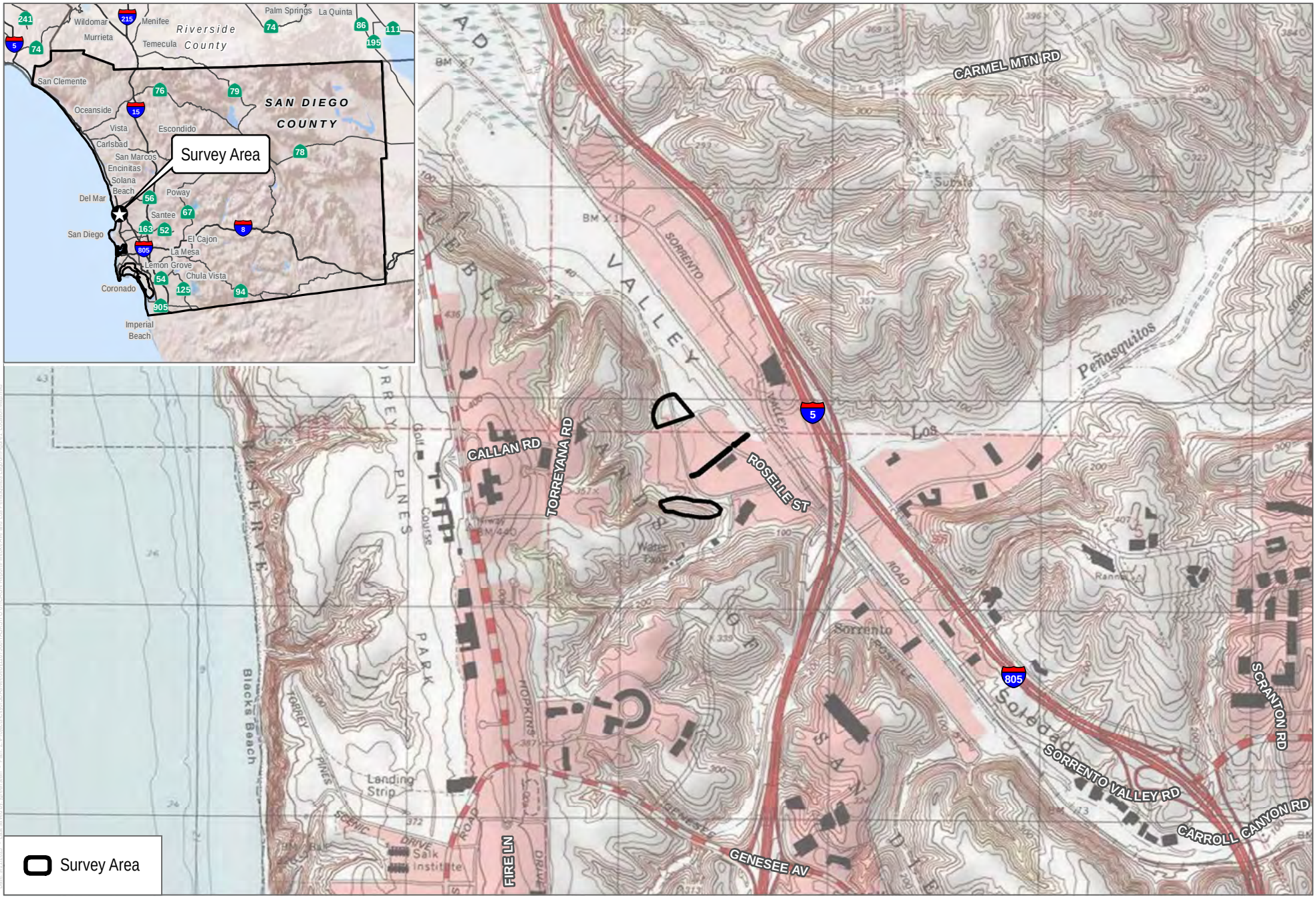
Atwood, J.L., and J.S. Bolsinger. 1992. "Elevational Distribution of California Gnatcatchers in the United States." Journal of Field Ornithology 63:159–168.

Bontrager, D.R. 1991. Habitat Requirements, Home Range Requirements, and Breeding Biology of the California Gnatcatcher (Polioptila californica) in South Orange County, California. Prepared for Santa Margarita Company, Ranch Santa Margarita, California. April 1991.

Braden, G.T., R.L. McKernan, and S.M. Powell. 1997. "Effects of Nest Parasitism by the Brown-Headed Cowbird on Nesting Success of the California Gnatcatcher." Condor 99:858–865.

USDA (U.S. Department of Agriculture). 2023. Web Soil Survey. Soil Survey Staff, Natural Resources Conservation Service (USDA), U.S. Department of Agriculture. Accessed July 2023. https://websoilsurvey.sc.egov.usda.gov/.

USFWS (U.S. Fish and Wildlife Service). 1997. "Coastal California Gnatcatcher (Polioptila californica californica) Presence/Absence Survey Protocol." Carlsbad, California: USFWS. Revised July 28, 1997. Accessed May 2021. https://www.fws.gov/ventura/docs/species/protocols/cagn/coastal-gnatcatcher_survey-guidelines.pdf.



SOURCE: USGS 7.5 min Del Mar Quadrangle

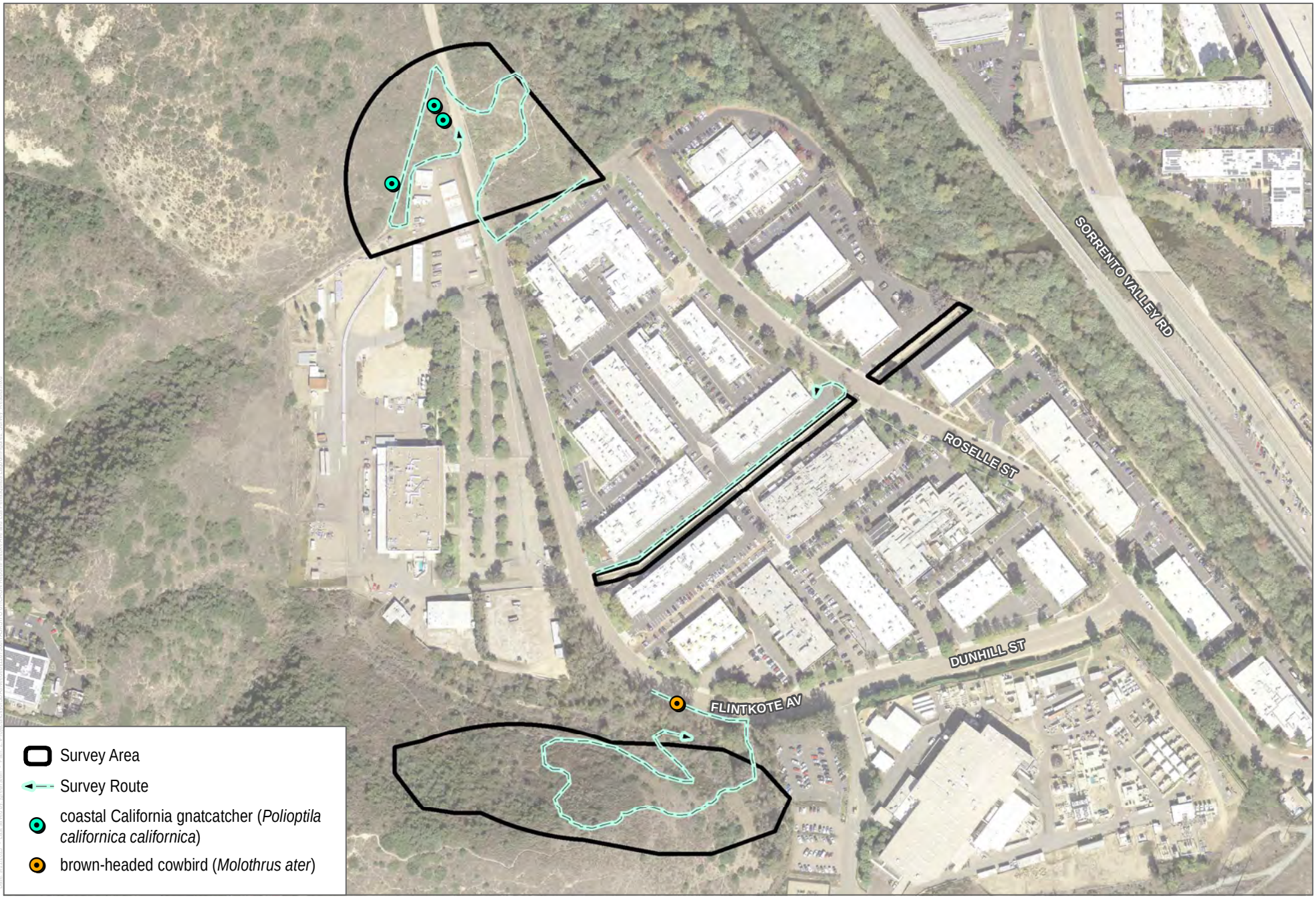
DUDEK

0 1,000 2,000 Feet

FIGURE 1

Location Map

Flintkote Ave Channel Maintenance and Los Peñasquitos Lagoon Restoration Project



SOURCE: City of San Diego 2022

DUDEK

0 150 300 Feet

FIGURE 2

Survey Results

Flintkote Ave Channel Maintenance and Los Peñasquitos Lagoon Restoration Project

Appendix A

Comprehensive Wildlife Species List

Birds

Blackbirds, Orioles and Allies

ICTERIDAE – BLACKBIRDS

* *Molothrus ater* – brown-headed cowbird

Bushtits

AEGITHALIDAE – LONG-TAILED TITS AND BUSHTITS

Psaltriparus minimus – bushtit

Cardinals, Grosbeaks and Allies

CARDINALIDAE – CARDINALS AND ALLIES

Passerina amoena - lazuli bunting

Pheucticus melanocephalus – black-headed grosbeak

Finches

FRINGILLIDAE – FRINGILLINE AND CARDUELINE FINCHES AND ALLIES

Haemorhous mexicanus – house finch

Spinus psaltria – lesser goldfinch

Flycatchers

TYRANNIDAE – TYRANT FLYCATCHERS

Myiarchus cinerascens – ash-throated flycatcher

Hummingbirds

TROCHILIDAE – HUMMINGBIRDS

Calypte anna – Anna's hummingbird

Selasphorus rufus – rufous hummingbird

Jays, Magpies and Crows

CORVIDAE – CROWS AND JAYS

Corvus brachyrhynchos – American crow

Mockingbirds and Thrashers

MIMIDAE – MOCKINGBIRDS AND THRASHERS

Toxostoma redivivum – California thrasher

Old World Warblers and Gnatcatchers

POLIOPTILIDAE – GNATCATCHERS

Polioptila californica californica – coastal California gnatcatcher

Pigeons and Doves

COLUMBIDAE – PIGEONS AND DOVES

Zenaida macroura – mourning dove

Swallows

HIRUNDINIDAE – SWALLOWS

Stelgidopteryx serripennis – northern rough-winged swallow

Wood Warblers and Allies

PARULIDAE – WOOD-WARBLERS

Geothlypis trichas – common yellowthroat
Setophaga coronata – yellow-rumped warbler
Setophaga petechia – yellow warbler
Leiothlypis celata – orange-crowned warbler

Woodpeckers

PICIDAE – WOODPECKERS AND ALLIES

Dryobates nuttallii – Nuttall's woodpecker

Wrens

TROGLODYTIDAE – WRENS

Troglodytes aedon – house wren
Thryomanes bewickii – Bewick's wren

New World Sparrows

PASSERELLIDAE – NEW WORLD SPARROWS

Melospiza melodia – song sparrow

Melozone crissalis – California towhee

Pipilo maculatus – spotted towhee

Chats

ICTERIIDAE – YELLOW-BREASTED CHAT

Icteria virens – yellow-breasted chat

Typical Warblers, Parrotbills, Wrentit

SYLVIIDAE – SYLVIID WARBLERS

Chamaea fasciata – wrentit

Reptiles

Snakes

VIPERIDAE – VIPERS

Crotalus oreganus – western rattlesnake

* signifies introduced (non-native) species